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ALTERNATIVE METHODS OF FINANCING AND DEVELOPING RESOURCE-BASED COMMUNITIES

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ALTERNATIVE METHODS OF FINANCING AND DEVELOPING RESOURCE-BASED COMMUNITIES

For:

Ministry of Municipal Affairs and Housing,

Province of British Columbia

By:

Thompson, Berwick, Pratt & Partners

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ERRATA

1. In several places in this report, it may be interpreted that the Provincial Government guarantees municipal debentures issued via the B.C. Municipal Finance Authority. It must be emphasized that the Municipal Finance Authority is entirely independent of the Government of British Columbia in respect of all financial matters as well as its structure and operating procedures. The powers and responsibilities of the Authority are derived solely from legislation enacted by the Provincial Legislature. All local government debentures are issued through the M.F.A. which represents all the municipalities and regional districts in the Province. Each debenture issue for a particular local government is in effect guaranteed by all other municipalities and regional districts.

   Hence, references in this report to the "Province" guaranteeing municipal debentures for a new resource community (and thereby assuming the risk of the community's failure) must be understood to mean in fact all the residents of the Province through their local government's membership in the Municipal Finance Authority, and not to mean the Government of British Columbia per se.

2. On page 3 of the Summary, the 2nd line of paragraph 1. in section 1.2 Housing should read: ". . . . . that 50% are single detached, 18% are single attached and townhouses, ...".

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ALTERNATIVE METHODS OF FINANCING AND DEVELOPING RESOURCE-BASED COMMUNITIES

The study is divided into two parts: financing, and methods of developing resource communities. By financing we mean who pays for the townsite, by what method, and over what period of time. By method of development we mean who is responsible for planning, disposition of land, and construction of the townsite components. It is important to separate and distinguish between who pays and who is responsible for development, for they are not necessarily the same group. The municipality may, for example, be responsible for planning, land disposition and site servicing, but the resource company may actually bear the cost of these components. It is therefore not possible to identify the method of financing by the method of development.

CONTENTS OF SUMMARY

PROGRAM COSTS AND FINANCING
1.1 Townsite Investments
1.2 Housing
1.3 Shares of Investment
1.4 Municipal Financing
1.5 Timing of Services
1.6 Policy-Relevant Conclusions

ALTERNATIVE DEVELOPMENT METHODS
2.1 Management Structures
2.2 Factors Affecting Choice of Development Methods
2.3 The Relative Advantages of Three Methods of Development
2.4 Policy-Relevant Conclusions

It should be noted that, in keeping with the terms of reference, this study is not based on a specific site or design, but is an investigation of the alternative methods of financing and developing a hypothetical, remote town of 5000 people in the North East Sector. Whereas the authors are confident with the relative order of magnitude of costs associated with development, the precise cost analysis will depend on detailed site engineering, townsite configuration, densities, and composition of land uses. Therefore, additional information is required before a commitment to specific cost-sharing agreements can be made.

1. PROGRAM COSTS AND FINANCING

The study investigates alternate ways of financing new, isolated, resource communities. Cost mark-ups associated with development in northern British Columbia have been assumed. A hypothetical town of 5,000 population with the type and level of services one would expect in comparable resource communities has been analyzed. The levels of services are based on current provincial standards. Where applicable, provincial and federal grants to municipalities have been applied.

1.1 TOWNSITE INVESTMENTS

1. Total investment in current dollars is estimated to be $105,955,000 for a population of 5,000, or $21,190 per person.

2. Assuming a $400 million regional infrastructure investment in roads, rail and communications to open a sector, the total townsite investment may represent 26% of the total investment.

3. Assuming six years to develop the town, 20-year debentures, and 25-year residential mortgage terms, a 31-year life expectancy is required from start of construction to recover the costs.

4. A population of 5,000 would be generated from 1,225 basic industry employees. This would result in the demand for 1,429 dwelling units over a six year start-up period. The total townsite investment per dwelling is approximately $74,000 of which $53,300 per dwelling

represents the actual housing investment per dwelling (building and on-site servicing); $6,800 per dwelling in commercial; $4,900 per dwelling in core services (off-site servicing; communications); $4,400 per dwelling in education; $1,800 per dwelling invested in recreation; $1,100 per dwelling invested in health; $700 per dwelling invested in municipal (fire, police), provincial and federal social services.

1.2 HOUSING

1. Of the 1,429 dwellings projected for 5,000 population, it is estimated that 50% are single ~~family~~ attached, 18% are single ~~detached~~ attached and townhouses, 15% are apartments, and 17% are mobile homes. Approximately 75% would be owned and 25% rented.

2. There is a gap between what the average resident can afford and what an average single-family accommodation costs.
   a) The average shelter budget based on 1.2 employees per family, a prime wage rate of $9.50/hour, a secondary rate of $4 per hour, current mortgage rates of 11-1/4% for 25 years, and ratio of principle, interest and taxes to gross income of 30%, would support a first mortgage of $48,000 at the time of purchase.

b) The average shelter cost (including serviced land at $15,300 net of cost sharing programs) for a 1200-sq. ft. family dwelling, is projected to be $62,250 in current dollars. Assuming 5% down-payment of $3,115, a $10,840 interest-free second mortgage or price reduction would be required to meet the average shelter budget.

3. The single-family dwellings, projected to be 50% of the housing stock, and the minority of multiple family, projected to be 4% of the housing stock, exceed the allowable price limits and therefore do not qualify for subsidies under existing federal or provincial housing ownership programs.

4. Some of the smaller multiple dwelling units and the majority of mobile homes, projected together at 21% of the total housing stock, are within the qualifying price limits for the B.C. second mortgage or the acquisition grant as per the B.C. Home Purchase Assistance Act.

5. Assuming that the apartments and one half the attached dwelling units, projected to be 23% of the housing stock, qualify under A.R.P. (Assisted Rental Program) the provincial investment is estimated to be $902,000 and the Federal investment approximately $702,000.

6. A decrease in the level of physical on-site services by deleting sidewalks, curbs, storm drainage and underground wiring would decrease the average land cost by $2,200 (from $15,500 to $13,300 for a 1,100-sq. ft. family dwelling).

1.3 SHARE OF INVESTMENT

The allocation of total capital costs at this point is made assuming existing and applicable cost sharing programs, no special contributions from either the resource company or Province, and the median level of taxes levied in eighteen comparable communities. The need for and effect of special contribution and increased taxes on the share of investments is discussed under the heading of Municipal Financing.

1.3.1 MUNICIPAL SHARE OF INVESTMENT

1. Of the total $106 million townsite investment, 28% or $29.7 million is the municipal share. Of this, $19.5 million is recovered from lot sales, and the remaining $10.2 million, which covers planning and development costs, off-site servicing, and contributions to health, education, recreation, and municipal services, is recovered by debentures that are retired by local taxes. The municipal share of investment will decrease with an increase in special contributions; it will increase if provincial and federal cost sharing programs are withdrawn.

1.3.2 PROVINCIAL SHARE OF INVESTMENT

1. Of the total $106 million townsite investment, 9.3% or $9.9 million is the provincial share. This amount results from existing provincial grants and cost sharing programmes for off-site services, on-site services (excluding water), housing, education, health, recreation,

and municipal and provincial services. The provincial share of investment will decrease to $6.5 million if the CRF and sewer assistance programmes are not applied.

1.3.3 FEDERAL SHARE OF INVESTMENT

1. Of the $106 million townsite investment, 2.3% or $2.4 million is the federal share. This amount is composed of federal grants from existing programmes for off-site services, on-site services, housing, and federal services. Although the federal government through C.M.H.C. may insure the housing, the investment is considered to be from the private sector. The federal share of investment will decrease if the programmes are withdrawn.

1.3.4 PRIVATE SECTOR SHARE OF INVESTMENT

1. Of the $106 million townsite investment 60.4% or $64.0 million is a mixture of commercial, industrial and individual residential investment and resource company investment. If the company provides interest-free second mortgages for its employees it would cost approximately 5 million dollars or 4.7% of the total investment. The company's share of investments will increase if special contributions to the municipality are required.

1.4 MUNICIPAL FINANCING

It has been assumed that the municipality would be incorporated under Section 10A of the Municipal Act regardless of who is responsible for development. Based on a 6-year phased construction period, annual operating and debt financing costs, the financial stability of the new town upon reaching the design population can be assessed.

1. Assuming 1) that the municipality's share of on-site servicing costs are recovered from lot sales, 2) that there are no cash or operating subsidies provided by the resource company, 3) that the property taxes are the median ($730 gross for 1,100-sq. ft. house) of that levied in 18 comparable communities, and 4) that the CRF and sewer programmes are applied, then the municipality will have an annual deficit of approximately $1.6 million dollars after the design population is reached. (If the CRF and sewer programmes do not apply, then the deficit would be $2.28 million dollars.)

2. This deficit can be eliminated and the municipality made self-financing after the design population is reached by:

   a) increasing property taxes and/or collecting business taxes:

      If non-residential property accounts for 50% of the property tax base, the municipal break-even point is reached when gross taxes on an 1100-sq. ft. house are $1138 with no business tax ($1208 if the CRF and sewer programmes do not apply); $1035 if business

taxes equal 10% of property taxes; $949 with business taxes at 20%; and $876 with business taxes at 30% of property taxes. If non-residential properties equal 70% of the tax base, the break-even house taxes are $683 with no business tax, $621 with business taxes at 10% of property taxes, $569 with 20% business taxes, and $526 with business taxes at 30% of property taxes. The median tax level, based on 18 comparable communities, is $730 per house.

b) special contributions:
Either directly or indirectly (via provincial loans) the company would have to contribute approximately $6.9 million dollars in year zero to have the municipality break even when the design population is reached, with property taxes at the median level ($8.0 million is required if the CRF and sewer assistance programmes are not applied). If, for example, the resource company provides the $3.4 million municipal share of off-site services at no cost to the municipality, the municipal finances would break even when the design population is reached only if an additional $4.1 million contribution is made or if the annual property tax for an average house is increased by $256.

An indirect resource company contribution could be secured by shifting municipal costs to lot sales, but the result would substantially increase shelter costs. Although the company might be forced to offer greater housing subsidies, these would be available only to company employees, and the cost of unsubsidized service sector housing would be exorbitant.

1.5 TIMING OF SERVICES

1. The development of a new community is dependent upon the "start-up" time of the resource industry. Assuming a six-year resource development period, a seven year planning and construction period is projected.

2. Assuming facilities are planned according to need rather than in anticipation of need, the development of recreation, health, municipal, and social facilities will be concentrated in the latter years of development. Consequently, early residents will have inferior services.

3. By constructing the recreation, health, and full municipal facilities in anticipation of need at the beginning of the construction phases, the municipality will incur an additional annual debt cost of $114,000 by year seven. This can be off-set by a $24 increase in the necessary annual property tax for an average house, or by an additional $495,000 special contribution, compared to the more delayed method of development.

4. Scale economies in townsite services depend on specific location conditions, and necessary design considerations. We, drawing on our experience, found no obvious examples of where scale economies could be gained. A review of cost schedules and opportunity to identify scale economies may be explored at a later date when a townsite has been chosen.

1.6 POLICY-RELEVANT CONCLUSIONS

1. We suggest that the provision of housing for the basic industry be the responsibility of the resource company. The company may produce housing by purchasing dwellings from a contractor and selling them to employees or by facilitating a direct purchase of the employer from a contractor. In both cases the resource company will be required to provide mortgage guarantees and therefore accepts a substantial part of the cost associated with the risk of the town's failure.

2. The Province's contribution to the start-up town should not be "automatic". Applying existing programmes automatically to new towns will reduce the size of the company's contributions. Provincial subsidies should be offered in return for company contributions. Their applicability should be the subject for negotiations.

3. The company, as the prime beneficiary, ought to bear or be willing to bear the cost of providing its employees with essential services. If the provision of these services precludes the venture's financial feasibility, then the project should not be undertaken. The Province may, however, wish to offer subsidies in order to gain benefits from the town's impact on the region's development. The 'horizontal equity' argument was not found to justify the automatic application of the Province's water and sewer assistance programs to the development of new towns.

4. The Province ought to bear a part of the cost of building the recreation facilities and of providing the day-care service. This conclusion is based on the 'pay according to benefits received' equity principle: Recreation facilities and day-care facilities help socialize the children who will eventually live in other parts of the province.

5. The Province may engage in the financing of the town in order to help secure an equitable distribution of start-up costs across the first resource company and any other company that arrives at a later date. It can do so by offering the town assistance in selling debentures. The MFA guarantees allow the town to be debt financed and assure that the entry of other companies reduces the per capita debt payments due to the start-up investments. The MFA guarantees constitute a substantial provincial commitment to resource towns.

6. The town may be viable economically but the company may not be able to pay at the start the amount required to eliminate the anticipated municipal deficit in year seven. The company's contribution to the front-end investment may adversely affect its cash-flow position and impare its ability to implement its production plans. Therefore the Province may choose to finance the townsite and recover its costs from the resource company.

   The choice of the 'pay and recover' method gives the Province a strong position when negotiating for company contributions, makes it easier for the company to contribute, allows the Province to 'fine tune' the degree of risk it wishes to absorb, and removes from the residents and service sector people some of the risk that is associated with the venture.

7. The Province may wish the start-up town to have at the outset the full range of health, recreation and education facilities. If the Province insists on this policy then it should be prepared to bear the risk associated with it and absorb the additional cost of deferring the debt retirement.

B. ALTERNATIVE DEVELOPMENT METHODS

The focus of this section is on the comparison of the private, mixed and public methods of development. The distinction among these approaches is in who is responsible for developing the town. The methods are not distinguished by who pays for the town. All methods can be used without necessarily involving direct provincial subsidies.

The following figure presents the distinctions.

DEFINITION OF THE PRIVATE, MIXED AND PUBLIC METHODS OF DEVELOPMENT

	Private		Mixed		Public	
Responsibility for:	Co.	Prov.	Co.	Prov.	Co.	Prov.
planning	X			X		X
land allocation	X			X		X
physical services	X		(3)	(3)		X
company housing	X		X		X	
service housing	X	(1)		(1)		(1)
commercial	X		(2)			X
recreation	X		(3)	(3)		X
health	X	X	X	X		X
education		X		X		X

(1) The provision of service sector housing is independent of the method of development.

(2) The business community, not the company, provides the commercial facilities in the Mixed approach.

(3) The company or the Province assumes responsibility for these services.

The crucial distinction between the private and the other two development

methods is in the control of land. In the private method, the company buys the land from the Province. In the mixed and the public methods, the Province retains the ownership and control over the town's land until such time that it can be sold to the users. This distinction is important because it is the owner of the land that determines its allocation, sets its price, determines the ease with which businesses can enter the town and, in general, determines the quality of the townsite.

The main distinction between the mixed and the public development methods is in the Province's role as an investor. In the public method, the Province or its Crown Corporation may finance, develop and manage the town's commercial and hotel facilities. In doing so, the Province retains control not only over the use of land but also over the use of the main buildings. The choice of the public method of development is not predicated on provincial subsidies.

In all three methods it is assumed that a district municipality is created at the outset under Section 10A of the Municipal Act, thus allowing resident representation as soon as possible and Municipal status for cost sharing programs.

2.1 MANAGEMENT STRUCTURES

1. For the private method, an appropriate vehicle for provincial involvement in new community development is the establishment of a Planning and Priorities Committee. This committee represents the ministries and departments that issue licenses and approvals. The function of this committee is to co-ordinate the provincial ministries that are

responsible for providing the town with public services and expediting approvals. The committee establishes the need, size, location and priority for public services.

2. For the mixed method, an appropriate vehicle for provincial involvement is the Interim Municipal Council created by the Letters of Patent under Section 10A of the Municipal Act (the New Towns legislation).

   Public officials would initially be appointed to this Council and gradually be replaced by local residents. The function of the Interim Municipal Council would be to undertake to plan, allocate land, develop physical services and coordinate social services. Planning approvals would be required from the planning and priorities committee and financial approvals from the Inspector of Municipalities.

3. For the public method, an appropriate vehicle is the Crown Corporation. It may be an existing one or a newly created one. It may be a wholly-owned subsidiary of a Crown Corporation. The Corporation would have control over all aspects of the town's development for a fixed number of years.

2.2 FACTORS AFFECTING CHOICE OF DEVELOPMENT METHODS

1. The decision on the development method should be made by the Province before starting negotiations with the company on who pays. This decision is made by considering the relative advantages of each method and evaluating them with regard to the priorities and the goals of the policy maker.

2. The Mixed approach can be cost-effective only if the Province decides at the outset to go this route. The risk in the Mixed approach is the chance that this method is adopted by default, by a desire of the Province not to have to make a decision to use the Private or the Public methods. If this happens, then the benefits of the Mixed approach will not be gained and the costs to the Province may be larger than need be.

   The choice of the Mixed method is made by a decision which establishes the Province's determination to control land allocation in the town. The Province, should it select the Mixed method, starts its negotiations with the company with a knowledge of the benefits that can be yielded by this approach and with a clear set of goals. The negotiations yield a contract which clearly specifies who is responsible for which town-site components and who pays for them.

   A joint decision-making process is highly inefficient without a <u>detailed written</u> agreement.

3. Since the Province guarantees the municipal debentures, the cost associated with the risk of a 'total failure' is borne by the Province no matter which development method is selected. Furthermore, this cost can be ignored at the outset due to the 'umbrella effect' of the regional infrastructure investment. It is inconceivable that the Province would allow the town to die even if the first company's venture were to fail. Doing so would be tantamount to abandoning the entire regional infrastructure investment.

4. If, like coal, the resource is non-renewable, the town's lifespan is limited and in fact a total failure will occur at some point in time unless other major resource ventures are undertaken at some later period in time. Without diversification, capital investments occur only in the initial years. If facilities or services are lacking at this time, it is doubtful they will ever be built. Clearly it is the Province, through its economic policies, not the municipality, that is in a position to encourage diversification; therefore the question of diversification is independent of the method of development.

2.3 THE RELATIVE ADVANTAGES OF THREE METHODS OF DEVELOPMENT

The relative advantages of each of the three methods of development are presented next. The first list describes the benefits that the Private method has over the other two. The second describes the benefit of either the Mixed or the Public methods over the Private method. These two lists help the policy-maker choose between the Private and the other two methods of development. The last two lists present the relative advantages of the Mixed and the Public methods. These lists help the policy-maker choose between these two methods of development.

2.3.1 BENEFITS OF THE PRIVATE METHOD NOT GAINED BY THE MIXED OR PUBLIC METHOD

1. The Province absorbs a smaller risk due to the town's failure to grow as planned.

2. The Province does not absorb the cost of any major and apparent planning, management and pricing errors.

3. The Province will not be faced with the problem of having other resource towns ask for additional assistance on the grounds of 'horizontal equity'.

4. The Province will incur fewer administrative costs.

5. The Province, by taking a 'low profile', will receive less blame for any of the town's shortcomings than it would were the Mixed or the Public methods of development used to yield a similar town.

2.3.2 BENEFITS OF THE MIXED OR PUBLIC METHOD NOT GAINED BY THE PRIVATE METHOD

1. Provincial involvement will increase the businessmen's perception of the town's long term viability. This in turn will stimulate the growth of the town's service sector.

2. Provincial control over land use will help assure that business-people are not excluded from entry to the town's economy. This will stimulate the growth of the town's service sector.

3. The growth of the service sector yields the following benefits:

   a. employment opportunities for women are increased
   b. competition in the commercial sector is increased
   c. the residents have more choice in retail outlets

4. Provincial development eliminates the 'Company Town' stigma.

5. Provincial involvement in the development process gives the government direct control over any subsidies it may wish to offer the

town for the purposes of:

a. providing a high level of start-up facilities
b. providing service sector housing
c. attempting to reap 'economies due to scale'
d. effecting a high quality townsite plan

6. Expertise in developing resource towns is retained for use in the development of other towns by the Mixed and Public development methods.

7. The continuity of planning the town through its various stages of growth is assured.

2.3.3 BENEFITS OF THE MIXED METHOD NOT GAINED BY THE PUBLIC METHOD

1. By not investing heavily in the town, the Province absorbs fewer costs associated with risks due to:

   a. the town's 'failure to grow' as planned
   b. planning and management errors
   c. pricing errors due to inflation

2. By not investing heavily, the horizontal equity problems concerning the allocation of funds across competing resource towns are diminished.

3. The Mixed method does not involve the Province as a large investor and therefore does not create the need for large Provincial outlays or large borrowings by a Crown Corporation.

2.3.4 BENEFITS OF THE PUBLIC METHOD NOT GAINED BY THE MIXED METHOD

1. The commercial development is increased by this method since the Province may become an investor in the facilities.

2. The Province, having invested extensively, can better effect program or developments which create additional employment opportunities for women.

3. By investing, the Province assures the town of a high level of services and facilities from the beginning.

4. Since the Province invests heavily in this approach, it does not need to carry on an open dialogue with the company after the Townsite Agreement has been signed. As a result, the administration efficiency of this method is improved.

2.4 POLICY-RELEVANT CONCLUSIONS

1. The Province should be involved in the townsite development at least to the extent of requiring the company to have its plans approved by a provincial agency before the mineral or forestry production approvals are granted and before the Province engages in large scale regional infrastructure programmes. By leaving the townsite discussion to the end, the Province gives up its negotiating strength. Once the regional infrastructure agreements are made, the townsite negotiations take on the characteristics of an 'end game' in which the company has the last move.

2. No matter which development method is used, the Province should not become involved in financing, building or subsidizing the company employee's housing. The company uses its housing policy to attract and keep its employees. Provincial involvement in this area would constitute a direct subsidy to the company.

3. For the private method, an appropriate vehicle for provincial involvement in new community development is the establishing of a Planning and Priorities Committee.

4. For the mixed method, an appropriate vehicle for provincial involvement is the Interim Municipal Council.

5. For the public method, an appropriate vehicle for provincial involvement is the Crown Corporation.

INTRODUCTION

THE SCOPE OF THE STUDY:

The key objective of this study is to define and evaluate a number of policy options for the benefit of the Cabinet in reaching a final policy position on the question of financial and management responsibilities in developing a new resource community. The scope of the study includes: 1) the estimation of the financial costs incurred in developing a new resource town; 2) the preparation of cash-flow schedules; 3) the determination of who pays for the various townsite components; and 4) the determination of who builds the town.

The study evaluates alternative management and financial arrangements. It defines and evaluates the exclusively private enterprise venture, the public approach and a mixed government-private scheme.

THE COMPONENTS OF THE STUDY:

In carrying out this study, we reviewed and revised the data provided by the Client on the estimated size of the town and the estimated cost of each townsite component. Two alternative timetables for development were prepared and their cost implications were revealed. The advantages and disadvantages of each of the three development methods were assessed. Sources of funding presently available in the Province were identified and other possible ways in which the Government could recover the costs were indicated and evaluated. The management structures for each development method were discussed and their use was evaluated in terms of 1) their implications on who pays for the town, 2) the degree of control the Province retains over the townsite development process, 3) their effect on the quality of life in resource towns, d) the risks and costs they impose on the Province, 4) their overall advantages and disadvantages.

The study does not determine what should be the level of services provided in the town but it does identify the benefit/cost implications of providing services to alleviate problems experienced by other resource towns. It does not address the question asking whether or not a new resource town is needed. The study does not deal with locationally specific features of a town. It does not consider the specifics of the regional infrastructure costs but does assess the implications on the financing of the town of their presence.

THE STRUCTURE OF THE STUDY:

The study was carried out in four phases. In the first, the theoretical aspects of the financing problem were explored, existing funding programs were identified, stages of the development process were described and a rough assessment of costs was prepared. This work served to identify the key aspects of resource town development that had to be explored by a case study analysis of existing towns. The arguments and the conclusions developed in this phase of the study were presented in our first working paper (Report 1).

The second stage of the study involved an examination of the specific problems and solutions which emerged in the development of Mackenzie, B.C., Grande Cache, Alberta, and Leaf Rapids, Manitoba. These towns were built by different methods of development which involved the Province to different degrees. The methods were characterized as the Private, Mixed and Public development methods. The potential benefits and costs of the three methods were revealed by the case studies and the observations were presented in our second working paper (Report 2).

The third stage of work involved the detailed examination of the Client's program for townsite infrastructure and community facilities. Two schedules for the building of community facilities were explored and their cost implications

were revealed. This stage of work concluded with the preparation of cash-flow schedules for a new resource town and an assessment of the deficits the municipalities would incur under various assumptions regarding tax rates, company contributions and the applicability of the Province assistance programs for water systems and recreation facilities. The results of this investigation were presented in our third working paper (Report 3).

The last phase of the study involved a synthesis of the first three and the determination of the key issues requiring a policy decision. The results of this last phase are presented in this report. Although its conclusions are based on the first three phases of the study, this report does not make or require explicit references to the three working papers.

THE REPORT STRUCTURE:

This report presents a synthesis of our findings and conclusions. The first chapter describes the program for a new resource community of 5000 people. It describes the capital costs incurred in the development phase and presents the town's cash-flow schedules. The deficits under various assumptions regarding tax levels and contributions are revealed and the various ways of eliminating the deficit are discussed.

The second chapter deals with the methods of development. It describes the appropriate vehicles by which the Province can implement each of the three methods and then presents the potential problems and possible solutions that may be created or resolved by the choice of any of the three development approaches. The relationship between the method of Provincial involvement in the resource town and the potential problems is discussed. The intangible and non-measurable costs and benefits associated with each method are presented in the summary of this chapter.

The third chapter deals with the key policy issues that are involved in determining who builds the town and who pays for the townsite components. The Appendix presents an evaluation of the alternative cost-recovery instruments that the Province may use should it wish to bear the start-up costs of providing some of the townsite components and aim to recover them by charging the company a tax or a price.

It should be noted that, in keeping with the terms of reference, this study is not based on a specific site or design, but is an investigation of the alternative methods of financing and developing a hypothetical, remote town of 5000 people in the North East Sector. Whereas the authors are confident with the relative order of magnitude of costs associated with development, the precise cost analysis will depend on detailed site engineering, townsite configuration, densities, and composition of land uses. Therefore, additional information is required before a commitment to specific cost-sharing agreements can be made.

CHAPTER 1

PROGRAM COSTS AND FINANCING

1.1 INTRODUCTION:

This chapter deals with the program costs and financing of a new resource community for 5000 people. An assessment of timing for construction and start-up is made and annual capital cost cash flows are calculated. Cost recovery and tax options are presented and the incidence of the costs of the townsite investment is revealed.

A detailed method of program design and cost estimation was followed. The construction programs and schedules provided by the client have been scrutinized. Information was derived from the literature on resource towns, from municipal statistics, from site visits conducted in the exploratory stage of this study and from our past experience in the design of resource towns. This information was used to test the validity and reasonableness of the construction programs presented to us. As a result of this check a few adjustments are recommended.

The client's costing of the town was checked by reference to our experience and through discussions with a quantity surveyor and several contractors who are currently engaged in resource town construction. Some adjustments in the client's cost estimates were made.

The adjusted program and the cost estimates were prepared essentially by relying on the knowledge of experts and on current practice in resource town development. They are not based on empirical estimates of production and cost functions. Such estimations may yield better programs and cost

estimates, but the studies needed for this scientific approach to the problem are too expensive to be considered in this study.

Inflation has been considered. All the cost figures presented in this chapter are in constant 1976 dollars. The effects of inflation have not been included in any of our estimates. There are three reasons for this.

First, the fact that inflation will cause the cost of services and facilities to increase in the future does not materially affect decisions made today. If a facility costs 50% more in five years' time it is because the dollar is worth that much less.

Second, although inflation may affect the benefit/cost ratio to the extent that its rates vary across different sectors of the economy, the pursuit of such speculative profits is not recommended. To spend public funds now in speculation of favourable differentials in inflation rates causes an increase in inflation and counters the goals of any policy the Government may have to curb the price increases.

Third, the use of inflated and deflated values can create confusion in the evaluation of alternative policies. It is easier for people to correctly assess and realize the burden of a program when costs are expressed in dollars with familiar values.

While we do not use dollars with varying values in this analysis we must stress the importance of recognizing inflation when making contracts that set prices. Inflation clauses must be written into them. The company may request lots that cost one million dollars to service today. If the lots are to be delivered and paid for at some future point in time, then the developer will want to price the lots at the cost of producing them at the time the sales transaction is concluded. If he does not adjust for inflation, then his cash-flow position will worsen and the developer will have to keep borrowing while he keeps building.

The municipal cash flow schedules that are presented in detail in this chapter are based on the assumption that the Province's CRF fund and the used water assistance programs apply to the municipality. No matter which development method is adopted, we believe that the municipality will be formed as a legal entity and that its administrators will apply for these programs. While the assistance is assumed to apply for the purpose of constructing the municipality's cash-flow schedule, we do not wish to infer that the programs ought to apply. (Indeed, arguments will be presented in Chapter 3 suggesting that they should not be applied automatically.) The implications of these assumptions are made clear throughout the text of this chapter, and the summary compares the town's cash-flow position under alternative assumptions regarding the applicability of these two programs.

1.2 PROGRAM:

1.2.1 Population

Evidence from the towns of Leaf Rapids, Grande Cache, Mackenzie, Sparwood and Lynn Lake suggests that a secondary employment multiplier of 0.3-0.5 is appropriate (although Grande Cache shows a figure of 1.1) when applied to the basic labour force only (see Table 1). Total employement per household averages about 1.2 in these communities, and average population per household is relatively constant around 3.5. These figures indicate a design population of ((1300 basic) + (.4 multiplier) (1300) / 1.2 emp. per household) (3.5), or 5310.

On an overall basis, the towns of Grande Cache and Mackenzie have 4.7 persons per basic employment; Lynn Lake is higher at 5.1, and some others are lower (Leaf Rapids and Sparwood at 4.1). Using 4.5-4.7, the indicated eventual population would be 5900-6100.

Given that the Terms of Reference specify a design population of 5000, this number can be approximated by using an employment multiplier of 0.4, an average population of 3.5 per household, and an overall average of 1.2[1] employees per household. A population of 5000 results if basic employment is 1225 rather than 1300. Since the program is based on the total projected population and not on direct employment, the use of 1225 basic jobs to yield a population of 5000 presents no significant distortion. Discussions with contractors familiar with large-scale development in remote areas suggest that the construction labour force would most likely consist of single workers at a camp due to the short, intense nature of construction procedures, the initial lack of amenities, and degree of isolation.

1. A provincial policy of encouraging female participation in the labour force would increase this figure of 1.2, which would mean fewer housing units.

TABLE 1: EMPLOYMENT AND DEMOGRAPHIC DATA

Source	Non-Basic Employ. Multiplier	Total Pop. per Basic Employment	Population per Household	Total Emp. per Household	Age Distribution				Males per Female
					0-19	20-34	35-54	55+	
Client	.4	3.9	2.6	1.0	40.1%	22.9	22.7	14.2%	1.09
Leaf Rapids	.4	4.1	3.45	1.2	44.7	40.4	13.5	1.4	1.18
Grande Cache	1.1	4.7	3.51	1.5	48.2	33.5	16.3	2.0	1.16
Mackenzie	.5	4.7	3.80	1.2	45.1	35.7	16.7	2.5	1.24
Sparwood	.4	4.1	3.4	1.0	42.7	27.7	20.1	9.4	1.20
Lynn Lake	n.a.	5.1	n.a.	n.a.	46.5	33.1	15.8	4.9	1.14
Fraser Lake	.3	2.3	n.a.	n.a.	45.6	28.6	20.8	4.6	1.29
Kaiparowits Study	1.2	4.8	2.6	1.2	n.a.	n.a.	n.a.	n.a.	n.a.
Private Study "A"	.5	3.8	2.6	1.0	n.a.	n.a.	n.a.	n.a.	n.a.
Private Study "B"	.3	3.9	3.3	1.1	n.a.	n.a.	n.a.	n.a.	n.a.

In addition, it is felt that while a multiplier of 0.4 is appropriate on the overall basis, it would be too high in the early years due to the lack of community size and infrastructure. As a result of these two factors, a more appropriate indirect employment multiplier might rise from, say, 0.3 in the initial years to 0.4 by the time of the 5000 design population. Such a schedule is shown below and is used for the remainder of this report.

TABLE 2: SUGGESTED EMPLOYMENT AND POPULATION PROJECTIONS

	Cumulative Year Totals					
	1	2	3	4	5	6
1. Direct employment	310	615	825	1030	1130	1225
2. Indirect employment	90	180	310	395	445	490
3. Total employment	400	795	1135	1425	1575	1715
4. Households (line 3÷1.2)	333	663	936	1188	1313	1429
5. Population (line 4x3.5)	1165	2320	3310	4160	4595	5000

The client's suggested age group distribution differs from that indicated by data on Leaf Rapids, Grande Cache, Mackenzie, Sparwood, and Lynn Lake, as shown below:

age group =	0.19	20-34	35-54	55+
5 towns	45.5%	33.7	16.8	4.0%
Client	40.1%	22.9	22.7	14.2%

It appears that the population could be younger than that indicated by the Client, with about 80% below 35 years of age rather than 63%.

The Client's suggested male-female ratio is 109 males per 100 females, but evidence from the five sample towns indicates that 118 males per 100 females is a more probable ratio.

1.2.2 Physical Services

The definition of physical servicing standards is both site and design specific. Such components as the water supply and sewage disposal systems are heavily influenced (and in many cases, defined solely) by site characteristics which include terrain, soil, climatic, and other conditions. Physical servicing is also dependent on the specific design of the community as it affects the necessary capacities for pipes, mains, and other parts of servicing, as well as the necessary lengths and quantities. Thus more refined definition of the requisite and/or desirable standards must await further refinement of both the community's site and design.

The Client has used quantities and standards of servicing in existing communities to estimate the component parts of the subject community. These include concrete curbs, catch basins, and storm drains. It is felt that the importance of economic considerations, combined with the lack of well-defined and supportable standards for some components, justifies the suggestion that a second level of standards also be considered. While most items would be the same as used by the Client, this lower level would lack the catch basins, concrete curbs, and storm drains, and would use gutters instead.

1.2.3 Social Services and Standards

The Client uses detailed standards as supplied by various departments of the provincial government, generally in terms of minimum and recommended levels. The recommended levels are used as the basis for cost calculations.

In some cases it is not possible to derive comparative standards for specific services or facilities due to limited or non-existent information from other sources. In other cases, the site-specific nature of

certain facilities -- most notably physical services -- precludes comparisons with standards in other towns. In still other cases the standards in the program are in fact based on comparisons with other communities to a degree which would make such comparisons here redundant. Thus alternative standards are discussed here only where evidence suggests reconsideration of the program's standards, although a summary list of standards is presented for various facilities and services (Table 3).

1.2.3.1 Health Services

A 25-bed hospital amounts to 5 beds per thousand population. Leaf Rapids and Mackenzie both have lower ratios (3.9 and 3.5), and Grande Cache has a higher ratio (8.1). Samples of towns in the literature show that in communities with 2000-6000 populations, the ratios average 6.9 per thousand and 10.9. While evidence from these studies and from Grande Cache indicates a ratio above the 5.0 figure in the program, many variables affect the justification for suggesting that a higher figure should be used. For example, some of the towns in the sample provide health care facilities for peripheral communities and thus the higher ratios are to at least some degree misleading. In addition, Grande Cache's ratio of 8.1 should more accurately be stated as 6.8 per thousand, using the design population of 5000 rather than the actual population of 4170. Thus it is felt that the 25-bed hospital for the subject community is appropriate on the basis of comparative norms.

The program includes 3 doctors, which is a ratio of 1 per 1667 population. This is below Leaf Rapids (1 per 1380), Grande Cache (1 per 1000), and samples from the literature (1 per 1140 and 730), but above the Mackenzie ratio (1 per 2200 people). Again, because of various factors (not the least of which is the possible cost of attracting one more doctor to the

TABLE 3: COMPARATIVE STANDARDS

Service	Program Design	3 Towns			Other Sources
		L.Rapids	G.Cache	Mack.	
HEALTH:					
Hospital Beds	5 beds per 1000 pop.	3.9	8.1	3.5	6.0 10.9
Public Health Unit	full-time operation	same as program			same as program
Ambulance	1 vehicle	all have service			all have service
Mental Health Unit	full-time operation				only 1 of 7 has service
Doctors	1 per 1667 pop.	1 per:			1 per:
		1380	1000	2200	1140 730
Dentists	1 per 5000 pop.	PT	4172	6500	4234 3104
PROTECTION:					
Police	1 officer per 1000 pop.	1 per:			1 per 400 pop.
		500	695		
Fire	volunteer basis	volunteer basis			volunteer basis
RECREATION:					
Library	yes (1.4 s.f. per capita)	yes	yes	yes	10 out of 11 have library
Curling Rink	yes	yes	yes	yes	all but 1 in sample
Hockey Arena	no	yes	yes	yes	all but 1 in sample
Indoor Pool	no	no	yes	yes	all but 1 have pool, but some are outdoor
COMMUNICATION:					
Radio	non-local stations	same as program			same as program
Television	rebroadcast (cable)	same as program			same as program
Newspaper	n.a.	yes	yes	yes (2)	most have local paper
COMMERCIAL OUTLETS:	12.15 s.f. per capita	19.3	unknown	13.8	-sample shows 1 outlet per 80 pop.; at 1500-2000 s.f. each - this is 19-25 s.f. per capita -other sources around 20 s.f.

town), it is felt that this ratio of 1 per 1667 people does not justify alteration.

1.2.3.2 Police Protection

The 5 RCMP officers suggested by the Client mean a ratio of 1 per thousand. This is below the level in Leaf Rapids (1 per 500), Grande Cache (1 per 695), Mackenzie (1 per 928), and the literature (1 per 400). The RCMP Administration and Personnel section (Division E Headquarters) states that for communities over 5000 people a ratio of 1 per 750 population is appropriate and for towns below 5000 a ratio of 1 per 1000 is to be used. This means that at the margin -- 5000 people -- a standard between the two might be justified. On this basis it appears appropriate to consider 1 more officer for the subject community; this would be a ratio of 1 per 830 people. Six officers would probably mean only a slight increase in floorspace requirements (1800 sq. ft. on a pro rata basis). However, this revision is very minor, and the Client's suggested staff of 5 officers is used elsewhere in this report.

1.2.3.3 Recreation Facilities

Virtually all resource communities studied or visited have both a library and an indoor curling rink, as suggested for a new town by the Client. However, the Client's program excludes a hockey arena and an indoor pool on the basis of the cost burdens on the community. Such a basis presupposes the methods of capital cost and operating cost funding. Clearly, if such facilities were built and operated by the resource company and leased at nominal rates to the town, the residents would suffer no cost burden.

On a comparative basis, evidence suggests that there should be an arena: all three visited towns have such a facility, and all but one community sampled in the literature have arenas. With respect to an indoor swimming pool, Grande Cache and Mackenzie have one each, Leaf Rapids has plans for one, and many of the sample communities have at least an outdoor pool, and some have an indoor pool. A private survey of recreation facilities in Alberta shows that 86% of all communities with "town" status have two of the three major facilities (curling rink, arena, and pool), and that over 95% of towns larger than 4500 have all three facilities. In addition, the need for a pool consistently ranks very high in resident preference studies regarding recreational facilities.

1.2.3.4 Commercial Facilities

The Client indicates that 60,750 sq. ft. of commercial space would be appropriate, based on a market study to determine the requirements. There is strong evidence to suggest that this ratio of 12.15 sq. ft. per capita is too low because it is used to refer to "retail sales and offices", but in fact is derived as a measure of retail trade floorspace only.

The Mackenzie Market Study prepared for the E.L.U.C. Secretariat indicates a ratio of 9.84 net sq. ft. per capita for retail trade floorspace. This compares well with the 12.15 sq. ft. ratio which would be about 10.5 sq. ft. on a net square-foot basis. Both the 9.84 and 10.5 ratios are somewhat lower than the levels indicated by some private studies (for example, Squamish at 13 sq. ft. and Sparwood at 12.5 sq. ft. per capita). On this basis, it is felt appropriate to suggest that a figure of 12 net square feet per capita be considered; this would amount to about 60,000 net square feet (or 70,000 gross sq. ft.) of retail trade floorspace.

Retail services and private office space amounts to about 50% of retail trade floorspace in Squamish and in Sparwood, and to 41% in Mackenzie. Applying a 40% factor to the 12 sq. ft. (net) figure, the total net floorspace in the subject town would be 60,000 + 24,000, or 84,000 sq. ft.; on a gross area basis, this would be about 96,000 sq. ft. of total commercial floorspace (excluding hotel, motels, service stations and building supply yards). The per capita ratios are thus 16.8 net square feet or 19.2 gross square feet. This compares favorably with the 19.3 (gross) total for Leaf Rapids. A sample from the literature shows an average of 1 outlet per 80 people in resource towns between 2000-6000 people; with an average of 1500 gross square feet per outlet, this would mean about 18 sq. ft. per capita for retail and service trade floorspace, and something above this when private office space is added.

1.2.4 Housing

The Client suggests using a distribution of housing types which "reflects the Sparwood situation", but which differs from evidence from other sources as shown in Figure 4 below:

TABLE 4: HOUSING DISTRIBUTIONS

Source	Single Detached	Single Attached*	Apt.	Mobile Home	Other
Client	49.4%	17.6	14.8	16.5	1.7%
Leaf Rapids	40.0%	42.1	12.0	5.8	0%
Grande Cache	43.6%	11.7	15.1	24.0	5.5%
Mackenzie	60.3%	5.4	11.8	22.6	0%
Sparwood (private study)	41.6%	12.1	14.7	29.2	2.4%
Private Study "A"	48.7%	---- 30.4 ----		20.9	0%
Kaiparowits Study	30.7%	27.4	28.6	13.3	0%

* includes townhouses

While the mobile home proportion of the Client's suggested distribution (16.5%) might appear somewhat low in relation to Grande Cache, Mackenzie, and Sparwood, it is felt that no meaningful alteration can be recommended.[1] This is because the methods of financing the housing components can have a substantial effect on housing types. For example, if financial assistance is made available to residents by either public or private sources, there will tend to be a greater proportion of single family houses and a lesser proportion of mobile homes than if residents receive no assistance. (In the case of Leaf Rapids, such economic concerns are to a large part the cause of the low proportion of mobile homes.) Since the question of assistance is largely beyond the control of prospective residents, future policies will play a dominant role in refining the distribution of housing types.

1.2.5 Summary

In general, the Client's design for the new community's facilities and services is based on well-researched standards which indicate that the new community would enjoy levels of services at a par with levels in other resource communities. It is felt that only three components of the Client's design could be altered in light of comparative standards.

1. Employment and demographic factors which suggest 1429 households for a population of 5000 (rather than 1860 households);
2. Recreation facilities which would include an ice arena and swimming pool in addition to a curling rink; and
3. Retail trade, service trade, and office floorspace of 96,000 sq. ft. (gross) rather than 60,750 sq. ft.

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1. It is noted that 16.5% would be the expected proportion in the absence of a provincial policy regarding this form of housing in the town. In any event, special design consideration should be given to mobile home development.

These suggested changes are incorporated into the design program for the remainder of this report and have an effect on capital costs, operating costs, and cash flow calculations.

TABLE 5

DESIGN PROGRAM

Component	Cumulative Year Totals					
	1	2	3	4	5	6
I - Demographic Data:						
Direct employment	310	615	825	1030	1130	1225
Indirect employment	90	180	310	395	445	490
Total employment	400	795	1135	1425	1575	1715
Households	333	663	946	1188	1313	1429
Population	1165	2320	3310	4160	4595	5000
Age Groups	0-19 yrs. = 45.5%	20-34 yrs. = 33.7%	35-54 yrs. = 16.8%	55+ yrs. = 4.0%		

II - Program for 5000 Population:	Design Standard
Housing distribution	single detached = 49.4% single attached = 17.6% apartments = 14.8% mobile homes = 16.5% other types = 1.7% Total = 100.0%
Housing numbers	single detached = 706 single attached = 252 apartments = 211 mobile homes = 236 other types = 24 Total = 1429 units
Physical services	
- offsite water supply	dam and gravity flow
- offsite sewage treatment	tertiary system
- onsite water supply	
- water treatment	
- onsite sewer system	
- roads, sidewalks, curbs	asphalt roads, concrete curbs and sidewalks
- catch basins and leads	(optional)
- street lighting	
- storm drains	(optional)
Education	
- elementary school	2 @ 34,350 s.f. each; 930 students total
- secondary school	1 @ 45,000 s.f.; 450 students
Health facilities	
- hospital	25 beds, 22,500 s.f., 40-45 staff
- public health and engineering inspection	300 s.f., 3.5 staff
- mental health	700 s.f., 6 staff
- ambulance	218 s.f. in, 360 s.f. garage, 1 vehicle, volunteer staff
- professionals	3 doctors, 1 dentist
Municipal Services	
- police	1500 s.f., 5 staff
- fire	1 pumper, 1 reserve unit, volunteer staff
- municipal government	5500 s.f.
- public works	(included above)
- library	3500 s.f., 2 staff, 15,000 bookstock
Provincial Social Services	
- human resources	730 s.f., 3 staff
- day care	3000 s.f. in, 10,000 s.f. out, 1 staff
- women's center	2000 s.f., 2 staff
Judicial	
- courts	(facilities in Chetwynd)
- probation	250 s.f., 1¼ staff
Federal Services	2,000 s.f.
Recreation	
- curling rink	4-sheet ice surface
- indoor pool	25 meters
- ice arena	85' x 185' surface
- outdoor facilities	parks, tennis courts, etc.
Communication	cable system, rebroadcasting, repeater facilities
Commercial	
- retail and offices	96,000 s.f.
- hotel/motel	88,000 s.f.
- service stations	13,000 s.f. of buildings
- other commercial	16,500 s.f.

1.3 CAPITAL COSTS FOR DESIGN POPULATION:

1.3.1 Introduction

This section examines the capital costs associated with providing the services and facilities for a community of 5000 people based on the design program outlined in Part 1.2.

The per-unit costs for most of the facilities and services originate from the Client and have been compared with estimates from quantity surveyor and contractors experienced in resource town development.

Where applicable cost-sharing provision for municipalities under various federal and provincial programs are assumed to apply unless otherwise noted.

Physical services are presented at two levels of standards: one as suggested by the Client, and the other a lower level using gutters instead of concrete curbs, catch basins, and storm drains.

Although two levels of standards for social services have been identified by the Client, we have chosen the one recommended as an appropriate standard. This level of standards has been checked and found to be on par with those in other resource communities.

1.3.2 Capital Costs

1.3.2.1 Planning and Development

A figure of $1,500,000 for the costs of planning and development is based on about 3% of the total project cost excluding housing (or about 1½%

including housing costs). It is assumed that this cost would accrue to the municipality.

1.3.2.2 Off-Site Servicing[1]

The costs of the water supply ($3,690,000) and the sewage treatment facility ($1,200,000) originate in the Client's program. As with all servicing costs, refinement must await further investigation of design and site factors. The water supply cost is assumed shared between the municipality and C.M.H.C. on the basis that C.M.H.C. will loan 2/3 of the cost and forgive 25% of this; the municipality is responsible for 1/3, plus the 75% portion of the C.M.H.C. loan amount.[2]

The cost of the sewage treatment facility is assumed shared among three governmental levels. C.M.H.C. would loan 2/3 of the total, then forgive 25% of this; the C.M.H.C. loan would be $800,000, the total debt, $1,000,000, and the forgiveness $200,000. A provincial cost-sharing program involving assistance for sewer projects is assumed to apply to both sewage treatment and sewage system costs. Since this program involves the difference between total annual debt costs and the amount raised by a 3-mill levy, it is necessary to combine the sewage treatment component (off-site) with the sewer system (on-site).

The amount of the on-site sewer system costs ($2,964,000) eligible for C.M.H.C. funding would be at least 10% of the total;[3] the loan amount would thus be 2/3 of 10%, or $198,000, of which $50,000 is treated as

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1. Including design fees.

2. The annual provincial assistance of 75% of the excess of debt charges over the amount raised by a 3-mill tax levy is excluded because of the ad hoc nature of its application. However, the effects are detailed on page 24.

3. Under C.M.H.C. guidelines, municipalities with no more than 5000 people can use a flat 10% of the sewer system as the eligible amount.

forgivable (25% of the loan). This means a municipal debt of $2,964,000 - $50,000, or $2,914,000. Thus the total sewer project debt would be $1,000,000 (treatment, off-site) plus $2,914,000 (system, on-site), or $3,914,000. The annual debt cost at 10% amortized over 20 years (0.1175 factor) would be $460,000, and the difference between this and the 3-mill levy ($66,000 -- see footnote 1) would total $394,000. The provincial contribution would be 75% of this, or $295,500, and the net annual cost to the municipality, $460,000 - $295,000, or $164,000. These can be pro-rated between on-site (25.5%) and off-site (74.5%) components and then capitalized into capital amounts.

Off-site: municipal share =	(25.5%)($164,500)/.1175 =	$ 358,000
provincial share =	(25.5%)($295,500)/.1175 =	642,000
federal share =	forgiveness of	200,000
	Total Off-site	= $1,200,000

Thus the total off-site costs would be $1,200,000 (sewer) plus $3,690,000 (water), or $4,890,000. The municipal share would be $3,433,000, the provincial share via debt assistance would be $642,000, and the federal share in C.M.H.C. loan forgiveness would be $815,000.[2]

1.3.2.3 On-Site Servicing[3]

These costs are based on the Client's estimates. The sewage system ($2,964,000) is as discussed in 1.3.2.2 above, with cost-sharing among the municipality, the Province, and the federal government.

On-site: municipal =	(74.5%)($164,500)/.1175 =	$1,043,000
provincial =	(74.5%)($295,500)/.1175 =	1,871,000
federal =	forgiveness of	50,000
	Total On-Site Sewer System	= $2,964,000

1. Based on an approximate assessment base of $22,000,000 for 5,000 people; phasing of assessments over 6 years is omitted here due to its complexity.
2. $615,000 for off-site water supply and $200,000 for off-site sewer costs.
3. Including design fees.

The on-site components of the water supply, treatment, and system amount to $3,806,000. Under the same C.M.H.C. program as used in the sewer calculations above, C.M.H.C.'s loan would be $1,903,000, its grant $635,000, and the municipality's total debt $3,171,000. Provincial assistance has not been assumed because of the ad hoc nature of its application.[1]

The costs of roads, sidewalks, and street lighting amount to $12,057,000, or 54.4% of the total on-site costs, with no cost-sharing provisions.

As mentioned in Section 1.2.2, it appears appropriate to consider two levels of on-site servicing: Level I, which would include storm drains, catch basins, leads, and concrete curbs; and Level II, which would use gutters instead of a storm drain system. Level I storm drain costs are estimated by the Client to cost $1,777,000. Applying the C.M.H.C. assistance program reduces the municipal share to $1,678,000 (based on an estimate that 1/3 of the total is eligible for the 2/3 C.M.H.C. loan); the C.M.H.C. grant would be $99,000. The costs of catch basins, leads, and concrete curbs ($1,560,000) would accrue to the municipality. For Level II, it is assumed the cost of gutters instead of a storm drainage system would be $280,000.

1.3.2.3.1 Level I Services:

For Level I, the total on-site costs would be $22,164,000, of which the municipality would be responsible for $19,509,000, the Province for $1,871,000 via debt repayment assistance, and the federal government for $784,000 in grants from C.M.H.C. The total on-site cost per housing unit (1429 units) would be $15,510. The municipality's share would amount to

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1. See following page for its effects if applied.

$13,650 per housing unit (this figure is used later on in the cash flow part of this report, 1.6.2.1.) The Provincial share would amount to $1,309 per housing unit and the Federal share $549 per housing unit.

1.3.2.3.2 Level II Services:

For Level II, the total on-site costs would be $19,107,000, or $3 million less than Level I. The municipality's share of this would be $16,551,000, with the Province providing an effective amount of $1,871,000 via debt cost assistance (as in Level I) and the federal government providing $685,000 in loan forgiveness.

1.3.2.3.3 Provincial cost sharing of water services:

It should be noted that if the provincial cost-sharing of the water supply, treatment, and distribution system were applied, it would reduce the municipality's share of off-site costs by $2,096,000 to $1,337,000, and its share of on-site costs by $2,168,000 to $17,341,000 for Level I and to $14,383,000 for Level II. Since this assistance is not legislated but rather on an ad hoc budget basis, it has not been applied in the summary table.

It should also be noted again that because of the site-specific importance of design, these estimates of physical servicing costs and cost-sharing should be viewed as guides only.

1.3.2.4 Housing

From 1.2.4 it is estimated that there would be 1429 housing units for the population of 5000. The distribution is as follows: 706 single detached, 252 single attached, 211 apartments, 236 mobile homes, and 24 others (bunkhouse units).

Discussions with contractors indicate that $38 per square foot is an

appropriate, all-inclusive cost figure for the creation of detached and attached houses. A figure of $40 is used for apartments and $65 for bunkhouses or single men's units (includes central dining facility). A total cost of $25,000 per mobile home is used. The capital costs and sizes of housing are shown below.

TABLE 6: HOUSING COSTS

Unit Type	Average sq. ft.	Total sq. ft.	Cost per sq. ft.	Total Cost
Single Detached (706)	1200	847,200	$38	$32,194,000
Single Attached (252)	1000	252,000	38	9,576,000
Apartments (211)	700	147,700	40	5,908,000
Mobile Homes (236)	720	169,920	$25,000/unit	5,900,000
Others (24)	300	7,200	65	468,000
Total	997	1,424,020	$37.95	$54,046,000

1.3.2.4.1 Housing Assistance: Assisted Rental Program (ARP):

There is a variety of public assistance programs for housing, including federal programs under the N.H.A., provincial programs (B.C. Home Purchase Assistance Act, etc.), and mixed federal-provincial programs (Assisted Home Ownership Program, Assisted Rental Program, etc.)

The upper limit on home prices for eligibility in the A.H.O.P. program in Vancouver is $47,000, the highest in the province. Clearly, the limit in the new community would be something below this -- perhaps around $35,000-$36,000. Because this is low in relation to housing creation costs, and because the program is tied to individual resident's ability to pay, it is felt that for purposes here A.H.O.P. housing should not be considered. It is recognized, however, that the eventual use of this housing program might be possible with reduced (subsidized perhaps by the resource company) housing prices. It is more likely that only two programs would apply: The Assisted Rental Program (A.R.P.), and the

B.C. Home Acquisition Grant of $1000 per new ownership unit.

A.R.P. provides first a maximum grant of $600 per unit from the Province to the developer of rental units in order to reduce economic rents to market rents. If there is still a gap between the two, a loan of up to $1200 per unit, normally repayable and interest-bearing only after 10 years, is available from C.M.H.C. Finally, should a gap still exist between economic and market rents, there can be a further loan, interest-free, of $1200 per unit from the Province. In determining economic rents, the developer is allowed a maximum return of 10% and must agree to keep the rental rates within predetermined ranges.

For purposes here it is felt reasonable to assume that all apartment units (211) and one-half the attached units (126) could qualify for the A.R.P. assistance. We have no reason to believe that the apartment developer would not seek A.R.P. assistance.[1]

The question of residential land prices is examined in Section 1.6.2.1 later in this report; however, the total revenues from lot sales would be $19,776,100, which works out to $13.89 per square foot of building. The average total creation cost per apartment unit would therefore be ($40 + $13.89) (700 sq. ft.), or $37,720. Assuming a developer's equity of 20%, a mortgage at 11¼% over 25 years, annual operating costs of $1000 per unit (including taxes), and an average market rent of $275 per unit, the levels of assistance are determined as follows:

1. The applicability of A.R.P. will depend on a variety of factors, including the capacity of the housing market to support rents in unassisted, private enterprise units.

- developer's return @ 10% on 20% of $37,720	=	$ 63 per mo.
- mortgage payments on 80% of $37,720	=	296
- operating costs @ $1000/yr.	=	83
- economic rent	=	$442
- less: market rent	=	-275
- shortfall 1	=	$167
- less: B.C. grant (max. = $600/yr.)	=	- 50
- shortfall 2	=	$117
- less: CMHC loan (max. = $1200/yr.)	=	-100
- shortfall 3 = B.C. loan	=	$ 17 per mo.

The loans and grant normally decrease each year by 10% of the original year's amount and are thus reduced to zero after 10 years. The present value of the grant, at 10%, is $2313 per unit. The difference between the present value of the B.C. loan advances and the present value of the loan amount to be repaid after 10 years is $353 per unit; the comparable figure for the C.M.H.C. loan is $2083. Thus the total contributions to apartment housing would be:

- B.C. grants = 211 @ $2313	=	$ 488,000
- B.C. loans = 211 @ $353	=	74,000
- total B.C. contributions	=	$ 562,000
- C.M.H.C. loans = 211 @ $2083	=	440,000
- total contributions	=	$1,002,000

For the 126 attached units, an average size of 900 sq. ft. is used. The total creation cost per unit would be ($38 + $13.89)(900 sq. ft.), or $46,700. With the same assumptions regarding developer's return and mortgage, but with operating costs of $900 per year (due to fewer common areas and less maintenance) and an assumed market rent of $350 per month, the determination of assistance would be as follows:

- developer's return @ 10% on 20% of $46,700	=	$ 78 per mo.
- mortgage payments on 80% of $46,700	=	366
- operating costs @ $900/yr.	=	75
- economic rent	=	$519
- less: market rent	=	-350
- shortfall 1	=	$169
- less: B.C. grant of $600/yr.	=	- 50
- shortfall 2	=	$119
- less: C.M.H.C. loan of $1200/yr.	=	-100
- shortfall 3 = B.C. loan	=	$ 19 per mo.

The present values are $2313 for the grant, $2083 for the C.M.H.C. loan and $395 for the B.C. loan. The total contributions for the 126 attached rental units are therefore:

- B.C. grants = 126 @ $2313	=	$291,000
- B.C. loans = 126 @ $395	=	50,000
- total B.C. contributions	=	$340,000
- C.M.H.C. loans = 126 @ $2083	=	262,000
- total contributions	=	$502,000

1.3.2.4.2 Housing Assistance: B.C. Acquisition Grant:

The provincial home acquisition grant[1] applies to housing at prices of $47,000 or less in the Lower Mainland, provided purchasers qualify. It is assumed that this $1,000 grant would apply to homes costing perhaps $36,000 in the new town, and therefore without some type of price reduction no single detached houses would qualify.

For purposes here it is assumed that all mobile homes (236) and 25% (63) of the attached, non-rental units would benefit from this grant. The provincial contributions would therefore be:

- attached units = 63 @ $1,000	=	$ 63,000
- mobile homes = 236 @ $1,000	=	236,000
		$299,000

1.3.2.4.3 Allocation of housing capital costs:

A summary of the capital cost and distribution of capital by development party is shown below.

1. As per the B.C. Home Purchase Assistance Act; the second mortgage loan is disregarded for purposes here.

TABLE 7: HOUSING SUMMARY (in $000)

	Total	Mun. Share	Prov. Share	Fed. Share	Private
Single detached	$32,194	0	$ 0	$ 0	$32,194
Single attached - owned	9,576	0	63	0	8,911
rented		0	340	262	
Apartments - rented	5,908	0	562	440	4,906
Mobile homes	5,900	0	236	0	5,664
Others	468	0	0	0	468
Total (1429 D.U.)	$54,046	0	$1,201	$702	$52,143

1.3.2.4.4 Shelter budgets:

It is useful to examine shelter costs and budgets to help clarify the gap, if any, between what residents can afford and what shelter costs.

For puproses here, three sizes of single detached houses are examined: 1100 sq. ft., 1200 sq. ft., and 1300 sq. ft. Shelter budgets are estimated on the basis of employees and labour rates, then related to capital distribution of housing costs.

Using a average of 1.2 employees per family (Section 1.2.1), a prime wage rate of $9.50/hour, and a secondary rate of $4 per hour, the estimated average family income would be:

(1 prime employee)($9.50)(2000 hours) +
(0.2 secondary employee)($4)(2000 hours) = $20,600.

While N.H.A. guidelines stipulate a 27%-30% ratio of principal, interest, and net taxes to gross income, the increasing cost of housing is making ratios of 35% and up more common. Using a 30% figure, the shelter budget per family would be (.30)($20,600), or $6,180 per year. As discussed in this report (1.7.3.2) an equitable gross tax per 1100-sq. ft. house would be $730; pro-rating this on a square-foot basis, the tax would be $796 for 1200-sq. ft. house and $863 for a 1300-sq. ft. house. After

deducting the $250 homeowner's grant, the net taxes payable would be $480 for 1100-sq. ft., $546 for 1200-sq. ft., and $613 for 1300-sq. ft. These net taxes can be subtracted from the above-calculated shelter budget and then capitalized at the current mortgage rate (11¼%, 25 years) to indicate the amount of the first mortgage. This is presented as follows.

TABLE 8: SUPPORTABLE FIRST MORTGAGES

	1100-sq. ft.	1200-sq. ft.	1300-sq. ft.
Shelter budget per month	$ 515	$ 515	$ 515
less: Net taxes per month	- 40	- 46	- 51
Funds for first mortgage	$ 475	$ 469	$ 464
Supportable first mortgage	$48,915	$48,295	$47,780

1.3.2.4.5 Shelter costs and capital distribution:

The average lot sale price is $13,840. Since the average housing unit size is 997 square feet, the land price works out to $13.88 per square foot of house.[1] Using this and a building cost of $38 per square foot, the total price per square foot of housing unit would be $13.88 plus $38, or $51.88. This would mean total costs of $57,070 for 1100-sq. ft., $62,250 for 1200-sq. ft., and $67,440 for 1300-sq. ft.

Given these amounts and the supportable first mortgages, the distribution of housing capital can be established, as shown below. The interest-free loans are determined by subtracting the first mortgages and down payments from the total costs.

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1. $13.88 per sq. ft. is the average price/cost for all housing units, but with a specific townsite design it would vary among the individual house types according to market conditions.

TABLE 9: DISTRIBUTIONS OF SHELTER CAPITAL

Housing Size =	1100-sq. ft.	1200-sq. ft.	1300-sq. ft.
Down payment @ 5%	$ 2,855	$ 3,115	$ 3,370
First Mortgage	48,915	48,295	47,780
Interest-free Loan	5,300	10,840	16,290
Total Cost	$57,070	$62,250	$67,440

It should be noted, of course, that the interest-free[1] loans would be reduced to the extent that down payments exceed 5%. In order to eliminate the need for such loans, down payments would have to range from 14% (1100-sq. ft. house) to 29% (1300-sq. ft. house). An alternative, however, would be a subsidized sale price or a combination of reduced price and interest-free loan. It should also be noted that the necessary amount for the 1200-sq. ft. house ($10,840) is not unrealistic in light of experience in some other resource towns.

1.3.2.5 Education

The total capital costs for two elementary schools and one secondary school are $6,284,000 as estimated by the Client on the basis of information from the Administrative Services division of the Department of Education. Each elementary school is assumed to be $1,810,000 and the secondary school $2,664,000.

There is cost sharing between the municipality and the Province, based on the use of mill rates. Because an estimate of the community's assessment base for school purposes would be very difficult to ascertain, the

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1. If the loans bear interest, the 30% P.I.T.:income ratio of 30% will increase.

sharing of capital costs is instead based on averages involving school district finances as per the 1976 School Trustees Association report.[1] The average ratio of provincial debt contributions to local debt contributions in six school districts[2] with around 1400 students is 1.85:1, or 65% provincial and 35% local. This would mean the following distribution of school capital costs:

	Elementary Schools	Secondary School
Municipal	$1,267,000	$ 932,000
Provincial	2,353,000	1,732,000
Total	$3,620,000	$2,664,000

1.3.2.6 Health

The cost of the 25-bed hospital (22,500 sq. ft.) has been estimated by the Hospital Insurance Branch of the Department of Health at $1,575,000. This would be shared between the municipality and the Province on a 40:60 basis. The municipality's share would thus be $630,000, and the Province's share would be $945,000.

The public health facility (300 sq. ft. in a combined complex) would cost about $12,000 based on $40 per sq. ft. The municipality's share would be 20%, or about $2000, and the Province would pay 80%, or $10,000. The mental health unit (200 sq. ft. in a combined complex) would total about $28,000, all of which would be the responsibility of the Province. The ambulance would cost $15,000; this would mean a total capital cost of $22,000 after adding in the building component (220 sq. ft.); the Province alone would pay these costs.

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1. British Columbia School Trustees Association, Analysis of 1976 School District Budgets. Vancouver, 1976.
2. School districts 4, 12, 21, 26, 50 and 77; average number of students is 1390.

The total capital costs of health facilities would be $1,637,000, of which the municipality would pay $632,000 and the Province $1,005,000.

1.3.2.7 Municipal Services

The capital cost of creating the general municipal government facility is estimated by the Client to be $250,000, which at $45 per sq. ft. would mean about 5,500 square feet. The capital costs of public works is estimated by the client at $177,000, which would include equipment. Fire protection is projected to cost $110,000, mainly for equipment. It is felt that these three components of municipal services capital costs could all share the same 5500 sq. ft. building. All of these costs would be the responsibility of the municipality.

The capital costs of police protection (1500 sq. ft. of building plus vehicles), $60,000, is thought to be the responsibility of the Province only.

The total capital costs of municipal services is $250,000 + $177,000 + $110,000 + $60,000, or $597,000, of which the town would pay $537,000 and the Province $60,000.

1.3.2.8 Provincial Services

Offices of the Department of Human Resources (730 sq. ft. as estimated by the Client) would cost about $29,000 inclusive of other capital costs for the Department. The Client also estimates capital costs of $175,000[1] for day-care facilities; for the 1500 sq. ft. of building for a women's center, a capital cost of $60,000 is felt appropriate. It is assumed the town would contribute one-third ($78,000) of the costs of these two services.

1. This figure can vary greatly depending on provincial policy.

The courts and assessment function would be administered from centers in existing communities or on a part-time or temporary basis in the new town itself, and so no capital cost is included for these services. Probation services would require a local but part-time use of facilities (250 sq. ft.) and a nominal cost of $3,000 is included for this.

The total capital costs of provincial services is $29,000 + $175,000 + $60,000 + $3,000, or $267,000, of which the Province would be responsible for $189,000 and the municipality for $78,000.

1.3.2.9 Federal Services

A figure of $90,000 has been included for the cost of federal services (an estimated 2000 sq. ft.); this would be the responsibility of the federal government only.

1.3.2.10 Recreation

It is estimated that a curling rink would cost $580,000; an indoor pool, $630,000 and an ice arena, $1,000,000. These would in total require 52,000 sq. ft. of buildings. The library (3,500 sq. ft.) building would cost $100,000 as estimated by the Client. Outdoor recreation facilities at $100,000 are estimated by the Client. These five recreation facilities would total $2,410,000, which would be split between the Province ($804,000, or one-third) through the C.R.F. Fund, and the municipality ($1,608,000).

In addition, the municipality would be responsible for the purchase of bookstock for the library ($200,000 as per the Client's estimates). The total municipal share of recreation capital costs would be $1,808,000.

1.3.2.11 Commercial Facilities

Retail and office space (96,000 sq. ft.) would amount to $4,320,000 at $45 per sq. ft.; similarly, other commercial (16,500 sq. ft.) and service station (13,000 sq. ft. of buildings) would be $750,000 and $600,000 respectively. A hotel/motel has also been included by the Client at $4,000,000; this would be about 88,000 sq. ft. at $45, although this is a preliminary cost estimate only.

It is assumed that the total capital cost of commercial facilities, $9,670,000, would be self-carrying -- that is, the revenues generated by such space would pay for the capital costs. This might not be true for some of the early years, particularly for the hotel/motel, but in any event it is felt that these capital costs would accrue to the private sector rather than the public sector.

1.3.2.12 Communication

The costs of communication (telephone equipment, cable television, etc.) are estimated by the Client to be $2,200,000. There are indications that a substantial deposit or downpayment would be required by the utility company, and it is not known at this time who would have to advance these funds. It is assumed here, however, that eventual user charges and advertising revenues would make these capital costs self-financing, and no public sector contributions are included.

1.3.3 Summary of Capital Costs

A summary of capital costs as discussed above is shown in the following table, which includes the public sector's shares of these costs.

TABLE 10: SUMMARY OF TOTAL CAPITAL COSTS

	Total	Municipal Share	Provincial Share	Federal Share
Planning and Development	$ 1,500,000	$ 1,500,000	0	0
Off-site Servicing:				
- water supply	$ 3,690,000	$ 3,075,000	0	$ 615,000
- sewage treatment	1,200,000	358,000	642,000	200,000
Sub-total	$ 4,890,000	$ 3,433,000	$ 642,000	$ 815,000
On-site servicing (Level I):				
- water supply and treatment	$ 3,806,000	$ 3,171,000	0	$ 635,000
- sewage system	2,964,000	1,043,000	$ 1,871,000	50,000
- roads, sidewalks, lighting	12,057,000	12,057,000	0	
- curbs, catch basins, leads	1,560,000	1,560,000	0	
- storm drains	1,777,000	1,678,000	0	99,000
Sub-total (Level I)	$22,164,000	$19,509,000	$ 1,871,000	$ 784,000
On-site servicing (Level II):				
- water, sewage, roads, sidewalks, lighting (as before)	$18,827,000	$16,271,000	$ 1,871,000	$ 685,000
- gutters	280,000	280,000	0	0
Sub-total (Level II)	$19,107,000	$16,551,000	$ 1,871,000	$ 685,000
Housing:				
- 706 single houses (1200 s.f. @ $38)	$32,194,000	0	0	0
- 252 attached (1000 s.f. @ $38)	9,576,000	0	$ 403,000	$ 262,000
- 211 apartments (700 s.f. @ $40)	5,908,000	0	562,000	440,000
- 236 mobile homes ($25,000)	5,900,000	0	236,000	0
- 24 others (300 s.f. @ $65)	468,000	0	0	0
Sub-total (1429 D.U.)	$54,046,000	0	$ 1,201,000	$ 702,000
Education:				
- elementary schools	$ 3,630,000	$ 1,267,000	$ 2,353,000	0
- secondary school	2,664,000	932,000	1,732,000	0
Sub-total	$ 6,284,000	$ 2,199,000	$ 4,085,000	0
Health:				
- hospital	$ 1,575,000	$ 630,000	$ 945,000	0
- public health	12,000	2,000	10,000	0
- mental health	28,000	0	28,000	0
- ambulance	22,000	0	22,000	0
Sub-total	$ 1,637,000	$ 632,000	$ 1,005,000	0

Table 10 (Cont'd)

	Total	Municipal Share	Provincial Share	Federa Share
Municipal Services:				
- general government	$ 250,000	$ 250,000	0	
- public works	177,000	177,000	0	
- fire protection	110,000	110,000	0	
- police protection	60,000	0	$ 60,000	
Sub-total	$ 597,000	$ 537,000	$ 60,000	
Provincial Services:				
- human resources	$ 29,000	0	$ 29,000	
- day care	175,000	$ 58,000	117,000	
- women's center	60,000	20,000	40,000	
- court	0	0	0	
- probation	3,000	0	3,000	
- assessment	0	0	0	
Sub-total	$ 267,000	$ 78,000	$ 189,000	$
Federal Services:	$ 90,000	0	0	$ 90
Recreation:				
- curling rink	$ 580,000	$ 387,000	$ 193,000	
- arena	1,000,000	667,000	333,000	
- indoor pool	630,000	420,000	210,000	
- outdoor recreation	100,000	67,000	33,000	
- library	300,000	267,000	33,000	
Sub-total	$ 2,610,000	$ 1,808,000	$ 802,000	
Commercial:				
- retail and offices	$ 4,320,000	0	0	
- hotel/motel	4,000,000	0	0	
- service stations	600,000	0	0	
- other commercial	750,000	0	0	
Sub-total	$ 9,670,000	0	0	
Communication:	$ 2,200,000	$ 0	$ 0	$
GRAND TOTAL (Level I Services)	$105,955,000	$29,696,000	$ 9,855,000	$ 2,391
GRAND TOTAL (Level II Services)	$102,898,000	$26,738,000	$ 9,855,000	$ 2,292

1.3.4 Summary of Cost Sharing Programs

The cost sharing programs used in calculating the respective share of capital cost (Section 1.3) are summarized here. It has been assumed that a new resource community would qualify on the same terms and conditions as any other municipality.

TABLE 11: COST-SHARING PROGRAMS

	Parties Involved			
	Municipality	Provincial Government	Federal Government	Private
Servicing:				
- off-site water	X	X(optional)	X	
- on-site water	X	X(optional)	X	
- sewage treatment	X	X	X	
- sewage system	X	X		
Housing:				
- acquisition grants		X		X
- rental assistance (ARP)		X	X	X
Education	X	X		
Health	X	X		
Police Protection	X	X	X	
Recreation	X	X		

1.3.5 Allocation of Development Costs

The allocation of development costs can be modified from the capital cost figures as per (Section 1.3) to take into account the recovery of some servicing costs via lot sales. This recovery is discussed in Section 1.6 (cash flows), and it is useful to combine it with other capital cost components from the viewpoint of cost allocation by party of development. Provincial and Federal cost allocations are by virtue of cost sharing programs. Special contributions to capital costs by the resource company or Province are not included here as these allocations are subject to

negotiation and agreement. The effects of such contributions are detailed in Section 1.7.2. The summary table of such information is presented below.

TABLE 12: COST ALLOCATIONS WITHOUT SPECIAL CONTRIBUTIONS

(in $000)

Components:	Lot Sales	Municipality	Province	Fed. Gov't.	Private
Planning and Development		$ 1,500			
Off-site services		3,433	$ 642	$ 815	
On-site services	$19,509		1,871	784	
Housing			1,201	702	$52,143
Education		2,199	4,085		
Health		632	1,005		
Municipal Services		537	60		
Provincial Services		78	189		
Federal Services				90	
Recreation		1,808	802		
Commercial					9,670
Communication					2,200
TOTALS	$19,509	$10,187	$ 9,855	$ 2,391	$64,013
	(18.4%)	(9.6%)	(9.3%)	(2.3%)	(60.4%)

1.4 OPERATING COSTS:

1.4.1 Introduction

This section examines the operating costs associated with providing services and facilities for a community of 5000 people based on the design program outlined in Part 1.2. The operating costs originate from the Client and have been compared with those experienced in other municipalities.

The operating costs discussed below refer to net costs -- gross operating expenses less user charges or other revenues associated with the services and facilities. All figures are in constant dollars.

1.42. Municipal Costs

Rather than estimate the operating costs as the services are listed in the preceding capital cost section, it is felt more appropriate to regroup them into categories which will allow use of information on comparably-sized communities. This information comes from the annually-published summary of municipal statistics for B.C. and from some financial statements for individual communities. Using a sample of seven towns,[1] the average per capita expenditures for the various municipal functions are as follows:

- general government = $31.82
- transportation = 44.97
- environmental health = 13.06

These would mean annual operating costs of $159,100 for general government and administration, $232,100 for transportation services, and $65,300 for

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1. Revelstoke, Fernie, Sparwood, Mackenzie, Rossland, Coldstream, and Grande Cache.

environmental health services (garbage collection, sewers, etc.). The indicated figure for recreation and culture ($29.88 per capita) would mean an annual cost of about $150,000, but this is raised to $180,000 to reflect the generally better facilities in the new town compared to the seven in the sample. Police and fire protection annual costs of $225,000 are derived from the Client's estimate of $175,000 for police and a separate estimate of $50,000 for a mainly volunteer fire department. As occurs in some municipalities, water system costs are assumed to be self-paying via user charges.

The total operating costs of providing municipal services is therefore estimated to be $159,100 + $232,100 + $65,300 + $180,000 + $225,000, or $861,500; of this, the municipality would be responsible for $774,000 and the Province for $87,500 (its share of the police protection costs).

1.4.3 Education

The provincial average operating cost per student is $1490; with a school population of 1400 pupils this would mean annual expenses of $2,086,000. Using information from the previously-referenced School Trustees Association publication for 1976, the average ratio of provincial to local contributions for operating expenses in six comparably-sized school districts[1] is 60% provincial, 40% local. This would mean that the Province would pay $1,251,000 and the municipality (or the school district) would pay $834,400. While the actual split would depend on such factors as Basic Education Program amounts, approved budgets, mill rates, and assessments, it is felt that the averaging technique as used will provide

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1. School Districts 4, 12, 21, 26, 50 and 77 all have about 1400 pupils each.

a reasonable estimate of cost sharing without complicated estimates of mill rates, assessments, and so on.

1.4.4 Health Services

The annual costs of providing health services are assumed to be the responsibility of the Province only. These costs, as supplied by the Client, are: hospital, $112,550; public health, $50,000; mental health, $120,500; and ambulance services, $6,000 (volunteer or part-time). These total $289,000.

1.4.5 Provincial Services

The costs of supplying these services are as estimated by the Client. Human Resources would be $38,300. This excludes direct welfare payments because traditionally there is little welfare in resource-based communities of this size; and because even if there are such payments it could be argued that they would be necessary no matter where the claimants lived in the province, and thus not the result of creating the new town. Court and probation services would be $26,000 and $27,000 respectively, even though they might be administered from an existing community. It is assumed that the annual costs of these three services would accrue to the Province only.

The cost of the Assessment Authority service, probably administered from an existing facility elsewhere (at least in the early years), would be about $2?,000, although this would actually depend on the mill rate (currently 1.17) and the assessment base; this cost is the responsibility of the municipality.

The operating costs for day-care services ($84,400) and a women's center ($40,000) are assumed shared between the Province at three-quarters ($63,000 and $40,000) and the municipality at one-quarter ($21,100 and $10,000 respectively).

The total annual costs of provincial services is $242,700, of which the Province would pay $184,600 and the town $58,100.

1.4.6 Federal Services

It is estimated that the annual operating cost of federal services would be approximately $100,000, to be paid by the federal government.

1.4.7 Summary of Operating Costs

It has been assumed that the operating costs of those services and facilities not mentioned above are self-paying through user charges, rent revenues, or other sources of cash inflows. A summary of the pertinent net operating costs, including the distributions among the public sectors, is shown below.

TABLE 13: SUMMARY OF NET OPERATING COSTS

	Total	Municipal Share	Provincial Share	Federal Share
Municipal:				
- general municipal services	$ 159,100	$ 159,100	0	0
- transportation	232,100	232,100	0	0
- environmental health	65,300	65,300	0	0
- recreation and culture	180,000	180,000	0	0
- police and fire protection	225,000	137,500	$ 87,500	0
Sub-total	$ 861,500	$ 774,000	$ 87,500	0
Education:	$2,086,000	$ 834,400	$1,251,600	0
Health:				
- hospital	$ 112,500	0	$ 112,500	0
- public health	50,000	0	50,000	0
- mental health	120,500	0	120,500	0
- ambulance	6,000	0	6,000	0
Sub-total	$ 289,000	0	$ 289,000	0
Provincial Services:				
- human resources (excluding welfare)	$ 38,300	0	$ 38,300	0
- day care	84,400	$ 21,100	63,300	0
- women's center	40,000	10,000	30,000	0
- court	26,000	0	26,000	0
- probation	27,000	27,000	0	0
- assessment	27,000	27,000	0	0
Sub-total	$ 242,700	$ 58,100	$ 184,600	0
Federal Services:	$ 100,000	0	0	$ 100,000
TOTAL NET OPERATING COSTS	$3,579,200	$1,666,500	$1,812,700	$ 100,000

1.5 TIMING AND SCHEDULING:

1.5.1 Phased Development

Based on employment factors and family composition as discussed previously, the following population projections are assumed:

By year:	1	2	3	4	5	6
Population:	1165	2320	3310	4160	4595	5000

The incremental nature of the population growth means that the development of the community facilities and infrastructure should entail phasing for at least some components of the design program.

1.5.2 Temporary Facilities

The population forecasts exclude a construction labour force as shown in Table 14 which tapers off in size as construction approaches completion. This raises the possibility of temporary facilities for not only construction worker accommodation, but also for certain community projects.

TABLE 14: RESIDENTIAL AND NON RESIDENTIAL CONSTRUCTION WORK FORCE

	1	2	3	4	5	6
Population	1165	2320	3310	4160	4595	5000
Dwelling units	333	330	283	242	125	116
Res. work force	435	435	325	275	100	100
Non-res. work force	40	50	150	80	175	30
	475	485	475	355	275	130

The basic choice involves whether it is feasible to provide temporary facilities for the construction labour force, write these facilities off over the total construction phase, and build permanent facilities as the

resident population rises to justify them, or to minimize all temporary facilities and create permanent structures which will first be occupied by the construction force and then by eventual residents. It is felt that the former may be preferable because the predominantly single construction force might be more suited to smaller temporary housing. In addition, the construction costs quoted by contractors usually include the costs of providing temporary facilities for workers, and if permanent facilities are provided these costs might still be included in the contractors' estimates. The question of temporary community facilities centers on economics and acceptability. Some of the facilities could be temporary until the resident population is sufficient to warrant the construction of permanent facilities; such things as portable classrooms for the school component and double-wide trailers for office functions could be used. The alternative -- creating an overcapacity -- may entail prohibitively high carrying charges, depending on the financing arrangements. Some facilities could not be offered in temporary structure at an adequate level (for example, a hockey arena-ice rink center). In addition, the provision of facilities in temporary structures early in the development program might impede the hiring of family employment households.

The topic of temporary facilities should be examined as design and scheduling factors and construction labour force characteristics become further defined.

1.5.3 Incremental Physical Services Program

The creation of certain basic physical services (such as the water supply) is of course necessary in the very early stages of development so that the townsite will be habitable for the construction labour force. As the community grows, many components of physical services can be extended from

the core services. This is particularly true of sewer and water systems for additions to the housing stock, since these usually consist of enclaves or neighbourhoods in designs which permit the incremental growth of sewer and water systems. These designs and the nature of the required services therefore seldom present serious obstacles to development as the community expands.

The creation of the core systems must be of sufficient capacity to facilitate incremental expansion. At the same time, however, excess over-capacity should be minimized to reduce costs. Because of the critical roles played by site-specific factors, physical design, and timing, sound engineering principles will dictate the specifics of incremental physical servicing.

1.5.4 Incremental Social Program

Social facilities and services lend themselves to incremental development to varying degrees. Education, for example, could be provided by creating elementary classrooms around a core facility as they are needed, or until such time as a second school may be justified at a new site. The fact that two schools will be needed, combined with the traditional preference of locating schools in residential areas, facilitates the incremental development of elementary schools. Secondary school students can attend classes in some other center (for example, in Chetwynd) until their numbers warrant construction of a school in the townsite. The high costs of secondary schools in terms of structures and necessary staff tend to prohibit the creation of a small core facility capable of expansion to a reasonable design capacity. Because the time between the start of the planning and the eventual completion of the permanent secondary school exceeds two years, some form of interim solution is necessary during the early years of the town's development.

Health care services can be provided on an incremental basis by: using existing facilities in other communities (witness Manitoba's air ambulance service) or by creating the physical structure in the townsite and using visiting or part-time staff (using the space for some other purpose during non-visiting periods), until the resident population justifies construction of the final facility or full-time staffing.

The provision of provincial social services on an incremental basis will likely be possible only to the extent of increasing staff after a physical facility is created. In the development period it would probably be more economical to administer the services from an existing facility in another community.

The administration of municipal responsibilities (fire, engineering, etc.) also lends itself to incremental expansion more on a staff basis than on a physical structure basis.

Recreation facilities such as a curling rink, hockey arena, and indoor pool are not capable of incremental expansion past the point of using cheaper outdoor facilities until the structures are warranted.

Commercial facilities can be expanded in increments only to the extent that more space can be added to the previous supply. This may be expensive if an indoor mall concept is used because most of the costs occur at the outset, and even if the store space remains vacant most of the cost has already been incurred. The provision of an adequate range of goods and services might necessitate some form of financial incentive to the shop-keepers in the early years.

Radio and television services do not lend themselves to incremental expansion other than to add a local broadcast facility to supplement reception from other communities. Expansion of a newspaper service would take the form of increased frequency of publication.

1.5.5 Incremental Housing Program

The provision of housing on an incremental basis is of course assumed to be the prime determinant of the need to expand all other facilities. Expansion of the housing stock is intrinsically incremental from a physical construction viewpoint to the extent that other than large multi-family structures, it is relatively easy to provide a low or high number of additional units.

Since housing must be provided in order to attract residents, and since there are certain economies of scale, it appears that increments to the housing stock will be larger in the early years and then more responsive to subtle changes in the later years. The general nature of neighbourhoods or enclaves lends itself to incremental increases.

1.5.6 Summary of General Considerations

The general question of incremental increases in the community's physical structures and social services is critically affected by economic factors. These include financing arrangements for capital and operating costs and economies of scale. Refinement of these factors must await refinement of various elements of the development procedure, ranging from mine operation schedules to detailed physical designs to finalized plans for financing.

The degree to which phased, incremental creation of community facilities and services can be defined for the various components also depends on the

interrelationships among them. For some, such as housing and physical servicing, the interdependence is fairly well-defined and easily discerned; for others -- most notably social services -- such clarity is not always apparent, and this elevates the need for careful design and planning for the new community.

1.5.7 Development Schedules

For purposes of examining the financial implications of the new community, some assumptions regarding incremental development must be made on a preliminary basis. There are two broad philosophies that can be adopted: overcapacities should be minimized by creating facilities only as the need for them, on the basis of population, use, and alternatives, warrants construction (while at the same time recognizing that some overcapacity will always exist in some facilities); or, overcapacities should be tolerated for some components on the basis that they may help attract new residents and thus stabilize the community sooner than otherwise. Disregarding the extremes of each philosophy -- build few facilities until years 4-6, or build all facilities in years 1-3 -- the schedules described below take a medium course and do not differ from one another to an unrealistic degree. Both recognize that facilities should be phased at a rate which would avoid unnecessarily harsh living conditions in the community.

1.5.7.1 Development Schedule "A"

The first philosophy -- build with need -- is represented by Schedule "A", shown below.

DEVELOPMENT SCHEDULE "A"

Off-site Services:	45% of design capacity in year 0, 30% in year 3, 25% in year 5.
On-site Services:	pro-rated by year on the basis of housing (see below).
Housing:	pro-rated on the basis of projected population; 333 units in year 1, 330 in year 2, 283 in year 3, 242 in year 4, 125 in year 5, and 116 units in year 6.
Education:	1 elementary school in year 2 (student population of 440), 1 elementary school in year 4 (790 total elementary pupils), and 1 secondary school in year 5 (414 pupils).
Health:	all facilities except hospital in year 2; hospital in year 6.
Municipal Services:	1/3 in year 2, remainder in year 5.
Provincial Services:	1/4 in year 2, remainder in year 5.
Federal Services:	40% in year 2, remainder in year 5.
Recreation:	1/3 of outdoor recreation in year 1; 1/3 of outdoor recreation, 1/2 the library, and the curling rink in year 3; pool and arena, and remainder of outdoor and library, in year 5.
Commercial:	1/4 of retail, office, service station, and other floorspace in year 1; 3/8 of such space, and the hotel motel, in year 3; and the remainder in year 5.
Communication:	2/3 in year 1, 1/3 in year 2.

It should be noted that some municipal, provincial, and federal services would be offered in the early years (even though no space is provided for some specific services) by administration from facilities in existing communities.

1.5.7.2 Development Schedule "B"

A moderate version of the second philosophy -- "build before need" -- is the same as Schedule "A" for all servicing, housing, commercial, and communications development. The advanced schedules for the other components are as follows.

DEVELOPMENT SCHEDULE "B"

Off-site and on-site servicing, housing, commercial and communications:	same as Schedule "A".
Education:	1 elementary school in year 2, 1 elementary and 1 secondary school in year 4.
Health:	all facilities except hospital in year 2; hospital in year 3.
Municipal Services:	1/3 in year 2, remainder in year 3.
Provincial Services:	all in year 2.
Federal Services:	40% in year 2, remainder in year 3.
Recreation:	1/3 of outdoor recreation in year 1; 1/3 of outdoor, 1/4 of library, and curling rink in year 2; pool and arena, and remainder of outdoor and library in year 3.

TABLE 15: DEVELOPMENT SCHEDULE "A"

Year =		0	1	2	3	4	5	6	Total
(Population)			(1165)	(2320)	(3310)	(4160)	(4595)	(5000)	(5000)
Planning and Develop.	($)	375,000	375,000	280,000	190,000	140,000	95,000	45,000	$ 1,500,000
Off-site Servicing	($)	2,200,000			1,467,000		1,223,000		$ 4,890,000
On-site Servicing	($)		5,165,000	5,118,000	4,389,000	3,753,000	1,939,000	1,800,000	$ 22,164,000
Housing	(D.U.)		333	330	283	242	125	116	1429 D.U.
	($)		12,594,000	12,481,000	10,703,000	9,153,000	4,728,000	4,387,000	$ 54,046,000
Education	(s.f.)			34,350		34,350	45,000		113,700 s.f.
	($)			1,810,000		1,810,000	2,664,000		$ 6,284,000
Health	(s.f.)			1,220				22,500	23,720 s.f.
	($)			62,000				1,575,000	
Municipal Services	(s.f.)			2,000			3,500		5,500 s.f.
	($)			252,000			345,000		$ 597,000
Provincial Services	(s.f.)			1,500			3,980		5,480 s.f.
	($)			75,000			192,000		$ 267,000
Federal Services	(s.f.)			750			1,250		2,000 s.f.
	($)			34,000			56,000		$ 90,000
Recreation	(s.f.)		(outdoor)		13,500		42,000		55,000 s.f.
	($)		33,000		742,000		1,835,000		$ 2,610,000
Commercial	(s.f.)		31,500		136,250		47,250		$ 215,000 s.f.
	($)		1,418,000		6,126,000		2,126,000		$ 9,670,000
Communication	($)		1,500,000	700,000					$ 2,200,000
Totals	(s.f.)*	--	31,500	39,820	149,750	34,350	142,980	22,500	420,900 s.f.
	($)	2,575,000	21,085,000	20,812,000	23,617,000	14,856,000	15,203,000	7,807,000	$105,955,000
Totals Excluding Housing	($)	2,575,000	8,491,000	8,331,000	12,914,000	5,703,000	10,475,000	3,420,000	$ 51,909,000

(*Excludes housing floorspace.)

TABLE 16: DEVELOPMENT SCHEDULE "B"

Year →		0	1	2	3	4	5	6	Total
(Population)			(1165)	(2330)	(3310)	(4160)	(4595)	(5000)	(5000)
Planning and Develop.	($)	375,000	375,000	280,000	190,000	140,000	95,000	45,000	$ 1,500,000
Off-site Servicing	($)	2,200,000			1,467,000		1,223,000		$ 4,890,000
On-site Servicing	($)		5,165,000	5,118,000	4,389,000	3,753,000	1,939,000	1,800,000	$ 22,164,000
Housing	(D.U.)		333	330	283	242	125	116	1,429 D.U.
	($)		12,594,000	12,481,000	10,703,000	9,153,000	4,728,000	4,387,000	$ 54,046,000
Education	(s.f.)			34,350		79,350			113,700 s.f.
	($)			1,810,000		4,474,000			$ 6,284,000
Health	(s.f.)			1,220	22,500				23,720 s.f.
	($)			62,000	1,575,000				$ 1,637,000
Municipal Services	(s.f.)			2,000	3,500				5,500 s.f.
	($)			252,000	345,000				$ 597,000
Provincial Services	(s.f.)			5,480					5,480 s.f.
	($)			267,000					$ 267,000
Federal Services	(s.f.)			750	1,200				2,000 s.f.
	($)			34,000	56,000				$ 90,000
Recreation	(s.f.)		(outdoor)	13,500	42,000				55,500 s.f.
	($)		33,000	742,000	1,835,000				$ 2,610,000
Commercial	(s.f.)		31,500		136,250		47,250		215,000 s.f.
	($)		1,418,000		6,126,000		2,126,000		$ 9,670,000
Communication	($)		1,500,000	700,000					$ 2,200,000
Totals	(s.f.)*	--	31,500	57,300	205,500	79,350	47,250	--	420,900 s.f.
	($)	2,575,000	21,085,000	21,746,000	26,686,000	17,520,000	10,111,000	6,232,000	$105,955,000
Totals Excluding Housing	($)	2,575,000	8,491,000	9,265,000	15,983,000	8,367,000	5,383,000	1,845,000	$ 51,909,000

(*Excludes housing floorspace.)

1.6 MUNICIPAL CASH FLOW:

1.6.1 Introduction

Development Schedules "A" and "B" form the basis for calculating municipal cash flow schedules. These reflect those cash inflows and outflows accruing to the municipality only, unlike the development schedules which include all costs. The municipal shares of these costs are calculated on a sequential basis for years 1 to 6 and are added to the municipal share of operating costs; the total is then subtracted from projected municipal revenues to determine the town's financial position each year.

Certain assumptions must be made regarding both costs and revenues. These are explained below in the same order that they appear in the cash flow schedules themselves.

1.6.2 Municipal Revenues

The revenues considered for purposes here consist of three types: lot sales at recovery levels, the per capita grant from the Province, and property taxes based on equitable levels.

1.6.2.1 Lot Sales

It is felt that the sale of lots should recover the municipal share of on-site physical servicing costs. While this is discriminatory to the extent that a portion of such costs could be charged to non-residential uses (such as commercial space)[1], virtually no distortion results because the total recovery of on-site servicing costs would be realized either by charging all to residential lots (as is done here) or by separating

1. Non-residential uses would in practice absorb some of the land costs (the amounts would depend on design factors and specific development policies)

the costs and charging each use the appropriate share. In addition, the residential lots certainly account for the major portion of these costs due to the level and extent of services they require; the non-residential uses are very compact in relation to the residential land uses.

In addition to the recovery of the municipality's share of on-site servicing costs, the lot sales also recover the interest charges on the first year's on-site costs.

The total municipal share of Level I on-site servicing is $19,509,000. The year 1 portion on a pro rata basis involving 333 housing units is 333/1429, or 23.3% of this total, which amounts to $4,546,000. Using an interest rate of 10% and an amortization period of 20 years (a factor of 0.1175 with annual compounding), and assuming that the average balance during the year is one-half of the total, the interest charges would be ($4,546,000)(0.1175)(½), or $267,100. Thus the total amount to be recovered from residential land sales is $19,509,000 plus $267,100, or $19,776,100. This amounts to $13,840 per housing unit.

Since there would be a lag between the number of lots serviced in a year and the actual receipts from sales in the same year, the revenues from the sale of residential land are calculated on one-half the number serviced in the previous year plus one-half the number in the current year. For example, 333 units are occupied in year 1, 330 in year 2, and 283 in year 3; year 1 revenues are based on 166.5 units (one-half of 333), year 2 on 166.5 plus 165 (one-half of 330), year 3 on 165 plus one-half of 283, and so on.

1.6.2.2 Per Capita Grant

The per capita grant is based on $34 per person as of the latest census. Because of the timing as suggested by the Client, year 3 would be a census year and therefore the grant for year 4 is based on the population as of year 3. Year 3 would not entail a grant because the census is conducted in mid-year and the results not released until late in the year. It is assumed that the funds from this grant remain at a constant level until the next census (year 8), when it would be based on 5000 people. For years 4-7 it is ($34)(year 3 population of 3310), or $112,500.

1.6.2.3 Taxes

Property taxes at $378 per capita are based on an equitable rate of $730 gross per 1100-sq. ft. house as ascertained from a sample of 18 communities, and on an assumption that non-residential properties would amount to 50% of the tax base. A more detailed discussion of this property tax level is presented in Section 1.7.3.2 later in this report. For the moment it will suffice to explain that a per capita tax figure of $378 represents the level that residents of the town would face if they chose to live in other resource communities or communities of the same size. For this reason it is an equitable amount.

The implications of property tax levels are far-reaching with respect to the financial stability of the municipality and these implications are discussed in Section 1.7.

There would be a lag between the property taxes based on population and the receipt of these expected taxes. Therefore, each year's tax revenue is calculated on the previous year's population plus one-half the increase from this to the current year's population. For example, year 1 population

is 1165 and year 2, 2320; year 2 tax revenue is thus based on 1165 plus (½)(2320-1165), or 1743 people. At $378 per capita, this totals $656,800 for year 2. The year 1 figure is based on only ½ of 1165 people.

1.6.2.4 Special Contributions

It is common in resource communities for the resource company to make special contributions to the municipality to offset development costs. Since these are determined by negotiation the effects of such contributions are left to Section 1.7.2. The cash flow presented here is without special contributions.

1.6.3 Municipal Capital Expenditures

Item in this category consist of the municipal shares of the capital costs as discussed earlier in this report. The amounts for any given year are based on the quantities and levels described in the Development Schedules "A" and "B". A miscellaneous and contingency cost factor is added to these municipal capital costs; this factor is 5% of their sum.

1.6.4 Debt Charges

All debt charges are based on amortization at 10% over 20 years (0.1175 annual factor). A year's debt charges consist of the sum of the annual payments on all previous amounts borrowed. The year 1 charge is comprised of the annual payment of $225,500 on year 0 debt of $1,919,000 (this $225,500 is incurred every year for 20 years) plus one-half year's interest on year 1 on-site servicing costs.

1.6.5 Operating Costs

The municipal shares of operating costs are based on its shares of total operating costs (as discussed earlier in this report) pro-rated in accordance with the population as of that year. Thus, "municipal" operating costs -- legislative and administrative functions -- for year 2 amount to $359,100, calculated on the basis that total operating cost of this component at the design population of 5000 is $744,000 (municipality's share), and by year 2 the population is 2320, or 46.4% of the design population; the year 2 cost is therefore 46.4% of $774,000, or $359,100. It is assumed that the amount for year 1 is small enough to allow its inclusion as part of planning and development costs.

Similarly, education costs are pro-rated on population, with the year 1 figure assumed negligible. This is also the procedure for determining the annual municipal cost of provincial services.

1.6.6 Total Annual Outflow and Surplus

The total annual outflow is the sum of capital expenditures, debt charges, and operating costs.

The annual surplus (or deficit) is the difference between total revenue and total annual outflow.

1.6.7 Debt Balances

The old debt balance for a year is the total outstanding debt from the end of the previous year less the amount of principal repaid in the amortization procedure. The year 1 old debt balance is $1,919,000 (off-site servicing,

planning, and development costs) less capital repayment of $32,600, or $1,886,400. The new debt balance consists of the current year's deficit plus the old debt balance. All debt amounts are amortized at 10% over 20 years (factor of 0.1175) based on the amount needed at the time of the borrowing.

1.6.8 The Cash Flow Schedules

Two cash flow schedules are presented below; the "A" and "B" schedules correspond to the Development Schedules "A" and "B" as discussed in part 1.5.7 before, except that the cash flow schedules deal only with the municipality's share of costs. The "A" schedule relates to the concept of providing facilities and services more or less as they are needed; the "B" schedule refers to an accelerated development procedure.

The cash flow position for year 7 is shown because it is the first normal year -- that is, there are no capital expenditures and no lot sale revenues.

1.6.9 The Cash Flow Position

Concentrating on the "A" schedule, it is clear that the municipality would be in a position of increasing debt each year. By year 7 the debt balance has reached $17.1 million ($3,420 per capita debt) and the annual deficit is $1.6 million. The revenues ($2.0 million) are sufficient to cover operating costs ($1.67 million) but the excess ($.33 million) cannot cover the annual debt charges. The cash flow for years 7-10 is presented below.

TABLE 17: CASH FLOW FOR YEARS 7-10

(Schedule "A" figures)

	Year 7	Year 8	Year 9	Year 10
Operating Costs	$ 1,666,500	$ 1,666,500	$ 1,666,500	$ 1,666,500
Debt Charges	1,980,800	2,174,000	2,390,000	2,624,000
Total Outflow	$ 3,647,300	$ 3,840,500	$ 4,056,500	$ 4,291,100
Revenues	2,022,500	2,002,500	2,060,000[1]	2,060,000[1]
Annual Deficit	$ 1,644,800	$ 1,838,000	$ 1,996,500	$ 2,231,100
Old Debt Balance	15,441,400	16,630,000	17,930,500	19,302,100
New Debt Balance	$17,086,200	$18,468,000	$19,927,000	$21,533,200

[1] Per capita grant based on 5000 population.

By year 10 the debt will have grown to $21.5 million and the annual deficit to $2.2 million. This would progress until year 20 when the year 0 debt of $1,919,000 will have been paid off, thus reducing the debt charges by $225,500. Year 21 would see another $3.2 million paid off, and so on. (It should be noted that the debt charges, even though fixed in constant amounts by the amortization procedure, should not be reduced in the schedule to reflect inflationary effects because the previous year's debt balance on which charges are based is always in constant 1976 dollars.)

In light of this deficit cash flow situation for at least 15 years (and quite possibly longer), the next task is to examine ways in which the net outflows by year 7 could be eliminated and the municipality achieve financial stability. This is the subject of the next part of this report.

TABLE 18: CASH FLOW SCHEDULE "A"

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7
Revenues:							
- lot sales @ $13,840[1]	$ 2,304,400	$ 4,588,000	$ 4,242,000	$ 3,633,000	$ 2,539,600	$ 2,470,400	0
- per capita grant[2]	0	0	0	112,500	112,500	112,500	$ 112,500
- taxes @ $378 per capita[3]	220,200	656,800	1,062,200	1,411,800	1,652,800	1,793,400	1,890,000
Total Revenue	$ 2,524,600	$ 5,244,800	$ 5,304,200	$ 5,157,300	$ 4,304,900	$ 4,376,300	$ 2,002,500
Capital Expenditures:							
- planning and development	$ 375,000	$ 280,000	$ 190,000	$ 140,000	$ 95,000	$ 45,000	0
- off-site services	0	0	1,029,900	0	858,600	0	0
- on-site services	4,546,000	4,505,200	3,863,600	3,303,800	1,706,500	1,583,700	0
- education	0	634,000	0	634,000	931,000	0	0
- health	0	2,000	0	0	0	630,000	0
- municipal services	0	227,000	0	0	310,000	0	0
- provincial services	0	22,000	0	0	56,000	0	0
- recreation	22,000	0	523,000	0	1,263,000	0	0
- misc. and contingency @ 5%	247,000	283,500	280,300	203,900	218,100	155,900	0
Total Capital Expenditures	$ 5,190,000	$ 5,953,700	$ 5,886,800	$ 4,281,700	$ 5,438,200	$ 2,414,600	0
Debt charges[4]	492,600	596,500	840,800	1,137,700	1,333,700	1,803,500	$ 1,980,000
Operating Costs:							
- municipal	0[5]	359,100	512,400	664,000	711,300	774,000	774,000
- education	0	387,200	552,400	694,200	766,800	834,400	834,400
- provincial services	0	26,900	38,400	48,300	53,400	58,100	58,100
Total Annual Outflow	$ 5,682,600	$ 7,323,400	$ 7,830,800	$ 6,825,900	$ 8,303,400	$ 5,884,600	$ 3,647,300
Annual Surplus (Deficit)	($ 3,158,000)	($ 2,078,600)	($ 2,526,600)	($ 1,668,600)	($ 3,998,500)	($ 1,508.300)	($ 1,644,800)
Old Debt Balance	1,886,400	4,954,300	6,899,100	9,236,000	10,665,900	14,324,000	15,441,400
New Debt Balance	$ 5,044,400	$ 7,032,900	$ 9,425,700	$10,904,600	$14,654,400	$15,832,300	$17,086,200

(See notes following.)

TABLE 19: CASH FLOW SCHEDULE "B"

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr.5	Yr. 6	Yr. 7
Revenues:							
- lot sales @ 13,840[1]	$ 2,304,000	$ 4,588,000	$ 4,242,000	$ 3,633,000	$ 2,539,600	$ 2,470,400	0
- per capita grant[2]	0	0	0	112,500	112,500	112,500	$ 112,500
- taxes @ $378 per capita[3]	220,200	656,800	1,062,200	1,411,800	1,652,800	1,793,400	1,890,000
Total Revenue	$ 2,524,600	$ 5,244,800	$ 5,304,200	$ 5,157,300	$ 4,304,900	$ 4,376,300	$ 2,002,500
Capital Expenditures:							
- planning and development	$ 375,000	$ 280,000	$ 190,000	$ 140,000	$ 95,000	$ 45,000	0
- off-site services	0	0	1,029,900	0	858,600	0	0
- on-site services	4,546,000	4,505,200	3,863,600	3,303,800	1,706,000	1,583,700	0
- education	0	634,000	0	1,565,000	0	0	0
- health	0	2,000	630,000	0	0	0	0
- municipal services	0	227,000	310,000	0	0	0	0
- provincial services	0	78,000	0	0	0	0	0
- recreation	22,000	523,000	1,263,000	0	0	0	0
- misc. and contingency @ 5%	247,000	312,500	364,300	250,400	133,000	81,400	0
Total Capital Expenditures	$ 5,190,000	$ 6,561,700	$ 7,650,800	$ 5,259,200	$ 2,792,600	$ 1,710,100	0
Debt charges[4]	492,600	596,500	912,200	1,424,800	1,769,400	1,979,600	2,094,700
Operating Costs:							
- municipal	0[5]	359,100	512,400	664,000	711,300	774,000	774,000
- education	0	387,200	552,400	694,200	766,800	834,400	834,400
- provincial services	0	26,900	38,400	48,300	53,400	58,100	58,100
Total Annual outflow	$ 5,682,600	$ 7,931,400	$ 9,666,200	$ 8,090,500	$ 6,093,500	$ 5,356,200	$ 3,761,200
Annual Surplus (Deficit)	($ 3,158,000)	($ 2,686,600)	($ 4,362,000)	($ 2,933,200)	($ 1,788,600)	($ 979,900)	($ 1,758,700)
Old Debt Balance	1,886,400	4,954,300	7,496,700	11,626,300	14,252,400	15,673,200	16,230,100
New Debt Balance	$ 5,044,400	$ 7,640,900	$11,858,700	$14,559,500	$16,041,000	$16,653,100	$17,988,800

(See notes following.)

NOTES TO TABLES 18 and 19

1. Average per-unit cost of total on-site servicing ($19,059,000) plus half-year's interest on Year 1 on-site servicing; each year's revenue is based on ½ the previous year's lots plus ½ the current year's (Year 6 includes ½ of Year 5 lots plus all Year 6 lots).

2. $34 per capita, based on population as of first census year.

3. Based on previous year's population plus ½ of current year's; $378 is an average per-capita tax including non-residential properties (but excluding business taxes).

4. The sum of the annual blended payments on all previous borrowings; Year 1 charges consist of interest on Year 0 amount of $1,919,000 for off-site servicing and planning and development costs plus one half-year's interest on Year 1 on-site costs.

5. Year 1 costs included as part of planning and development costs.

6. Debt from Year 0 consists of off-site servicing ($1,544,000) plus planning and development ($375,000), less principal repayment in first year.

1.7 MUNICIPAL COST-RECOVERY ECONOMICS:

1.7.1 Introduction

Both Cash Flow Schedule "A" and "B" indicate that the municipality would be unable to break even on a cash flow basis without either decreasing cash outflows or increasing inflows (or a combination of the two).

The capacity to reduce annual costs lies in two areas: operating expenses or debt costs. Of the former, a reduction would probably require some form of new municipal-provincial agreements or a negotiated municipal-company arrangement. It is felt that the potential implications of new municipal-provincial cost-sharing agreements might be such that further study of the topic would be warranted -- certainly by the Province, which might find itself with similar requests for aid by existing municipalities. Any arrangement for municipal-company cost-sharing of operating expenses would require negotiation between the two parties, and thus is beyond the scope of this section. It is therefore felt that a reduction in operating costs should not be examined here. This means that if total annual costs are to be reduced, it is more appropriate to examine a lessening of debt pyaments rather than operating costs. This could occur via interest rate subsidies from the lending parties or by capital sums advanced in cash or in kind. For purposes here, the concept of capital contributions is examined.

The other general method of eliminating the annual cash deficit -- increase revenues -- involves property taxes rather than lot sales (which are a form of capital inflow rather than annual revenue) or per capita grants (which are beyond the municipality's control). These taxes are discussed in terms of an equitable residential tax level based on levels in other

communities. No attempt is made to combine these two concepts (reduced debt payments via capital contributions, and increased taxes) because of the unknown but necessary negotiations for the first concept, and the enormous number of possible combinations of the two concepts.

1.7.2 Capital Contributions

As shown in Cash Flow Schedule "A", there would be a $1.6 million annual deficit by year 7, with the municipal debt at $17.1 million. Because total expenses exceed revenues, the debt would continue to rise for another 13-19 years until the amortization of the first few years' capital debt is complete.

A cash contribution in any year would reduce the debt payments and thus the municipal deficits.[1] Since the difference between revenues ($2,002,500) and operating expenses ($1,666,500) amounts to $336,000 per year and would support $2.86 million of debt (at 10%, 20 years), the necessary cash contribution in year 6 would have to be about $13 million in order to reduce debt payments to $336,000 in year 7.

The present value necessary for break-even is $6.9 million; in other words, if a cash contribution of $6.9 million were made to the municipality in year 0, there would be no cash flow deficit for year 7 and beyond.

The resource company might make such a contribution in cash or kind in year 0, or perhaps by paying the annual debt instalments on provincial funds advanced in year 0 on the company's behalf. Clearly, however, any contribution made by the company would be the result of negotiations.

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[1] If the Province shared the off-site water costs as mentioned at the end of Part 2.2.2, its effective contribution of $2,096,000 would reduce the year 7 debt balance by $3.7 million. Conversely, if no provincial off-site contributions were made for either water or sewers, the debt in year 7 would be $1.1 million higher than the $17.1 million shown in Schedule "A".

While lump sum contributions would eliminate the annual deficit, tax revenues also offer the potential for eliminating the municipal deficit. This is discussed below on the assumption of no cash contributions, just as this discussion of necessary lump sum contributions assumes no changes in the municipal tax revenues.

1.7.3 Municipal Taxes

1.7.3.1 General

Increased annual municipal revenues would avoid the cash flow deficit as determined in Schedule "A" previously. The principal source of revenue is property tax collection, and it is possible to calculate the level of taxes that would be required to balance municipal expenses with revenue. This is the subject of the remainder of this Section.

First, an explanation of the tax revenues as used in Cash Flow Schedule "A" is presented in terms of equitable taxation for residents. This is followed by a discussion of the effects of various residential and non-residential property tax ratios, based on the concept that the company (and other non-residential uses) would contribute significantly to municipal property tax receipts. Finally, the relationships between equitable residential taxation and possible business taxes are examined from a break-even cash flow viewpoint.

1.7.3.2 Equitable Property Tax Levels

An average per-capita tax of $378 is used as part of municipal revenues in Cash Flow Schedule "A". This figure is determined on the basis of comparable gross taxes in other communities and an assumption that in the subject town industrial and commercial property taxes amount to 50% of total taxes.

Current gross property taxes for an average, newer single-family house of 1100 square feet in 18 communities (12 in B.C., 1 in Alberta, 5 in Manitoba -- see footnote 1 below) were examined; the median value is $730 per year, and this is used for the subject town on the basis that residents here should be expected to pay gross property taxes in keeping with levels found in comparable communities. The fact that residents in other towns may or may not benefit from a larger commercial/industrial tax base (which helps reduce residential taxes) should be irrelevant to the question of equitable taxes for the subject community. The property tax levels should approximate the levels that residents would face if they lived in other communities.

The median value of $730 per year for an 1100-sq. ft. house translates into $661.5 per unit in the new townsite (average of 997 sq. ft. per unit). This would be a total residential tax of $945,000 (1429 units at $661.5). Assuming that the industrial/commercial tax base would amount to 50% of the total tax base, the gross property tax receipts would be $1,890,000 (= $945,000 x 2), or $378 per capita. This is the figure used in the cash flow schedules.

The justification for assuming a 50% ratio is based on observations of Mackenzie, Grande Cache, and Leaf Rapids. In Mackenzie it is estimated that 2/3 of property tax receipts originate from non-residential properties. In Grande Cache, the non-residential contribution to the total

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1. In B.C.: Merritt ($635), Rossland ($700), Sparwood ($650), Prince Rupert ($1100), Castlegar ($1045), Nelson ($965), Cranbrook ($900), Fernie ($835), Kimberley ($785), Trail ($730), Golden ($675) and Invermere ($710). In Alberta: Grande Cache ($780). In Manitoba: Leaf Rapids ($670), La Pas ($890), Thompson ($685), Flin Flon ($670), and Steinbeck ($665).

is 43% (including the Improvement District transfer based on the mining operation). In Leaf Rapids, non-residential properties contribute 81% of the total, including grants in lieu of taxes and excluding the special mine contribution to debt; if grants are excluded, the ratio rises to 86%. Thus the use of a 50% ratio for the townsite might be considered conservative on the basis of Mackenzie and Leaf Rapids, although it is close to the Grande Cache ratio. The effects of a ratio above 50% are discussed later in this Section.

1.7.3.3 Necessary Tax Levels

The total tax revenue necessary for a break-even cash flow is about $590 per capita. This would yield $2,950,000 in total annual taxes for year 7 and later; the increase of $212 over the $378 as used in Schedule "A" would also result in different deficits for years 1-6 and therefore a different debt balance at the end of year 6.

The $590 per capita figure would result in an average tax of $1138 per 1100-sq. ft. house (compared to the 18-town sample median of $730) if non-residential properties amount to 50% of the total tax base. However, if the industrial/commercial share of the tax base were 60% rather than 50% -- and, as mentioned in 1.7.3.2 above, this would still be less than the ratios for Mackenzie and Leaf Rapids -- the tax level for a municipal cash flow break-even point would amount to $911 for an 1100-sq. ft. single family house. This would be $181 above the comparable median of $730. If the ratio were 70% (between the Mackenzie and Leaf Rapids ratios), the breakeven point would be $683 per 1100-sq. ft. house.[1] These various break-even taxes are shown below.

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[1] If provincial assistance for off-site water costs were to be applied ($2,096,000), the tax levels would be reduced by $100 per house (50% non-residential tax base), by $85 per house (60% non-residential tax base), and by $63 per house (70% non-residential base).

TABLE 20: NECESSARY PROPERTY TAXES ON 1100-sq. ft. HOUSE

	Non-residential properties as % of tax base:			
	0%	50%	60%	70%
Tax at break-even point	$2,278	$1,138	$ 911	$ 683

1.7.4 Business Taxes

The discussion and Table 20 above deal with break-even tax levels in the absence of business taxes, but the potential for municipal revenues from this source should not be ignored. If a business tax were levied on industrial and commercial enterprises, the average necessary property taxes for break-even cash flow would decrease.

The basis upon which business taxes can be determined is limited by the Municipal Act and involves the use of property assessments and/or rents. Since these are extremely complicated to determine at this stage of investigation, it is felt that relating business tax receipts to property tax receipts in other communities will serve as a rough basis for analyzing the effects of a business tax in the new community.

From a year-end summary of municipal statistics,[1] business tax receipts were sampled for seven communities[2] (excluding major urban centers) as a percentage of real property tax receipts. The samples ranged from 6.4% to 33.7%, with a median of 12.1% and a weighted average of 14.7%. For purposes here, three ratios -- 10%, 20%, and 30% -- are used.

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1. Department of Municipal Affairs, Municipal Statistics (Including Regional Districts). Province of British Columbia (Victoria, 1975).
2. Port Alberni, Campbell River, North Cowichan, Kitimat, Dawson Creek and Prince Rupert; the ratio for Gold River is taken from its financial statements.

With a business tax:property tax ratio of 10% and necessary break-even revenue of $2,950,000, the two types would be as follows:

Property taxes	= (1.0/1.1)($2,950,000)	=	$2,682,000
Business tax	= (0.1/1.1)($2,950,000)	=	268,000
	Total Tax Revenue	=	$2,950,000

With a 20% ratio the taxes would be:

Property taxes	= (1.0/1.2)($2,950,000)	=	$2,458,000
Business taxes	= (0.2/1.2)($2,950,000)	=	492,000
	Total Tax Revenue	=	$2,950,000

With a 30% ratio the taxes would be:

Property taxes	=		$2,269,000
Business taxes	=		681,000
	Total Tax Revenue	=	$2,950,000

These necessary property taxes can be translated into average gross taxes per 1100-sq. ft. single detached house with the previously-discussed non-residential ratios of 50%, 60%, and 70%. The results are shown below in tabular form.

TABLE 21: NECESSARY HOUSE TAXES AT BREAK EVEN POINT WITH MUNICIPAL BUSINESS TAXES

	Gross Annual Taxes on 1100-sq. ft.			
Business taxes as a % of property tax =	0%	10%	20%	30%
Non-residential tax base as % of total property tax base:				
0%	$2,278	$2,070	$2,898	$1,751
50%	1,138	1,035	949	876
60%	911	828	750	701
70%	683	621	569	526

It is apparent from Table 21 that the industrial/commercial portion of the tax base must be at least 60% in order for the property tax on an 1100-sq. ft house to be equal to or less than the equitable rate of $730 per year. The

break-even cash flow could also be reached with no business tax if the non-residential share of property taxes were to be 70% or over, but it is more prudent to assume that this share would be somewhere between 60% and 70%. With an average of, say, 65% (close to the Mackenzie ratio), the business tax would have to be $248,500 (10% of total property taxes) to result in a municipal cash flow break-even position while keeping residential property taxes at an equitable level.

These figures assume no initial cash contribution from the resource company. As discussed earlier, the level of such assistance, if any, would be a negotiated part of the town's development, and thus no attempt is made here to quantify possible relationships among the equitable residential taxes, the non-residential share of property taxes, the potential business taxes, and any cash contribution from the resource company.

1.7.5 Summary

With the application of existing cost sharing programs, no special contributions and an equitable tax level, the municipality incurs an annual deficit of $1.64 million after start-up in year 7. This deficit increases in subsequent years.

The municipality can be made to break-even in year 7 by increasing the level of taxation, by securing special contributions, or a combination of the two. The arguments and considerations for negotiating these options are discussed in Chapter 3. Table 22 presents the annual deficit and the grant or the property tax increase needed to overcome it. It compares the deficits computed by changing the assumptions regarding the applicability of the CRF and the sewer assistance programs.

TABLE 22

SUMMARY OF MUNICIPAL DEFICITS UNDER VARYING ASSUMPTIONS

REGARDING THE APPLICABILITY OF PROVINCIAL PROGRAMS

	Annual Deficit in year 7	Deficit overcome by: Initial Capital Contribution**	OR	Increase in Property Taxes on S.F. House*
CRF & Sewer Apply	$1.64m	$6.9m	or	$408
CRF not apply	$1.76m	$7.5m	or	$450
Sewer not apply	$1.76m	$7.5m	or	$450
CRF & Sewer not apply	$1.88m	$8.0m	or	$478

*This increase is added to the $730 taxes on the 1100 sq. ft. single-family house. The $730 levie is the median payment made in 18 comparable towns. The figures are based on the assumption that residential property accounts for 50% of the property tax base, that no business taxes apply, and that no special contributions are made.

**Initial contribution required to make the municipality break even with median property tax of $730 per 1100 sq. ft. single-family house.

CHAPTER 2

DEVELOPMENT METHODS

2.1 INTRODUCTION:

This chapter deals with the problems that are encountered in developing resource towns. It discusses the manner in which these potential problems can be resolved or pre-empted by changing the method by which the town is developed. The introduction describes briefly the three methods of development that are to be evaluated. The management structures for each development method are presented in the second section. Potential problems are listed in the third. Next, possible solutions are discussed. The alternative methods of development are compared and then a brief benefits/costs evaluation is presented in the summary of this chapter. Tables presenting 'keyword' summaries are found at the end of each section.

The focus is on the Private, the Public Enterprise and the Mixed Public-Private Sector methods of development. The distinctions among these methods are not clear-cut. All three methods of development involve the Company and the Province. In all three, the Province becomes involved in the development process by helping finance it through the Municipal Finance Authority's debenture guarantees, by regulating the development through the 'Letters of Patent', and by providing educational and health facilities. The Company becomes involved in the Government-developed town by creating the need for the town, by stating its needs for lots and facilities, by providing housing to its employees, and by sharing the cost of providing services and facilities. While the costs and the risk absorbed by the Province change with the method of development, the crucial distinctio

among the three methods of development is the result of changing the concern which is responsible for planning, land disposition, construction of physical services, provision of housing and other facilities. Figure 23 following presents a summary of the distinctions.

In the Private method of development, the Company is responsible for most phases of development. The Regional Hospital District and B.C.H.P. are responsible for planning, building, and operating the town's hospital; the Company ensures that the start-up town has doctors and dentists. The sharing of the responsibility for this service is the same in the Mixed method of development. The local School District is responsible for education facilities in all cases. For the purposes of the evaluation presented in this chapter, the Provincial programs for the water supply and sewage treatment systems are assumed not to apply in the case of the Private development method.

The Company is responsible for housings its employees, and this does not change across the three development methods. The Company uses its housing policy to attract and keep desirable employees. Provincial subsidies or absorption of the risk of this investment would be the equivalent of a direct subsidy to the Company. The Province may help the service sector residents finance their housing, and such programs are independent of the development method because they can be instituted with just about the same ease under each of the three approaches.

In the Mixed method of development the responsibility for land allocation rests with the Province. The Province or the Company may be responsible for physical services.

FIGURE 23

DEFINITION OF THREE METHODS OF DEVELOPMENT

Responsibility for:	Private		Mixed		Public	
	Co.	Prov.	Co.	Prov.	Co.	Prov.
planning	X			X		X
land allocation	X			X		X
physical services	X		X	X		X
company housing	X		X		X	
service housing	X	(1)		(1)		(1)
commercial	X		(2)			X
recreation	X		(3)	(3)		X
health	X	X	X	X		X
education		X		X		X

(1) The Province may provide service sector housing under each method of development. Through its housing policies, the Province may have housing provided to public and private service people regardless of the development method used to build and manage the townsite.

(2) The business community, not the Company, provides the commercial facilities in the Mixed approach. The Province allocates the land and issues the regulations but it does not build or finance the facilities. In the Public method the Province may finance the start-up commercial facilities. In the Private method the Company may have to finance the shopping mall.

(3) Joint decision-making and joint sharing of responsibility is not assumed under the Mixed method. One or the other parties takes the responsibility of providing these services. The respective responsibilities of the two parties is spelled out in a written contract made before the development starts.

In the case of physical services and health facilities the Company and the Province may be responsible for separate components of the systems. For example, in the Mixed method the Company may build the site services while the Province may be responsible for providing the central services.

The Company may provide lot servicing while the Province builds central infrastructure components. The Company or the Province may provide the recreation facilities. In the Mixed method it is the Province or the Company that assumes responsibility for these components; a joint decision-making process is not assumed. The Province may subsidize the costs of these components through the CRF fund and water assistance programs but the choice of the Mixed method is not predicated on these subsidies. The Mixed method may be used and the Company may in the end absorb the costs.

In the Public method the Province is assumed to or a Crown Corporation provide the interim financing for all basic infrastructure components and community facilities. The Province may also become an investor in the town's commercial facilities. To do so the Province or the Crown Corporation may borrow money from general revenues or it may issue debentures on behalf of the municipality or it may borrow on the open market. These costs, provided that no new subsidy programs are created, may be recovered through user charges, local taxes and contributions from the Company.

The most important distinction, affecting the quality of life in resource towns, is in the control over land allocation. In the Private method the control is in the hands of the Company. The Province may affect the allocation by means of regulations specified in the terms of the land sale and in the 'Letters of Patent'. Regulations may avoid gross misuses of land and misconduct in its allocation, but they will not help effect a "creative control" over the form of the townsite development; regulations can not be designed to foresee all future circumstances. In the Mixed and the Public methods of development, the Province or its Crown Agency retains control of the land throughout the development process. It can directly

affect the town's form, the use of land, and the ease with which land is made available for public facilities, recreational uses and commercial enterprises. Whoever owns the land determines its allocation, sets its price, affects the town's growth rate, determines the ease with which businesses can enter the town and, in general, determines the quality of townsite.

The crucial distinction between the Mixed and the Public development is in the extent that the Province becomes involved as an investor. In the Mixed approach the Province essentially controls development, allocates land, provides interim financing, and administers the start-up town. In the Public method the Province or its Crown Corporation does all this and also becomes an investor in such components as the commercial, hotel and recreation facilities. In the Public method the Province not only controls the land use but also the use of the main buildings.

It is important to note that the three methods of development are not distinguished by the extent of subsidies offered to the town or to the Company. The distinction is in who is responsible for various aspects of townsite development and management and thereby in who is in control of these aspects.

2.2 MANAGEMENT STRUCTURE:

A management structure is required by the Provincial Government to respond to the development of a resource based community. This structure may or may not currently exist. Each of the private, mixed and public methods of development require a different management structure, and each implies different development responsibilities and different management roles. However, irrespective of the method of development, the government provides an approval role by issuing resource licences, water, sewer and land use permits, and subdivision approvals. In the public method of development the government would approve its own proposals.

Seven management roles are required to construct a new town. These are identified and their relationship to nine development responsibilities is discussed for each method of development. A suggested management structure which matches role and responsibility is given.

Relationship Between Development Responsibility and Management Roles

As stated in the introduction, the main distinction among the three methods of development is based on who is responsible for the various components of the development, such as planning, land allocation, physical and other services. In order to successfully exercise these responsibilities an efficient management structure is required. The components of such a structure, whether it be a company, staff, or Crown organization, include:

1. Project Management: This component provides control over the overall budgeting, scheduling, financing, design and implementation of the new town.

2. Development Planning: This component initiates and coordinates the design of individual components.

3. Finance: This component provides for monitoring of cost and release of expenditures necessary for cost control.

4. Legal: This component executes agreements and contracts among company, government agencies, contractors and other producers of the town.

5. Government/Company Liaison: This component initiates negotiations to establish need, size, location and priorities for townsite structures and facilities.

6. Construction Management: This component provides for the expediting of construction contracts to achieve completion on time and budget.

7. Marketing: This component provides for the promotion, selection and allocation of people to space.

Figure 24 indicates the relationship between the government's management role and its development responsibility if the Private method of development is selected. The government's strongest role is one of liaison in development planning and financing of health and education.

Figure indicates the relationship between the government management role and development responsibility if the Mixed Private/Public method of development is selected. The government has three strong roles: first is in project management, development planning of town site design, and provision of physical services; second is the provision of health and education; and the third is the allocation of land.

Figure 26 indicates the relationship between the government management role and development responsibility if the Public method of development is selected. Under this option, the government becomes involved in project management, development planning, financing and construction management of the physical and social services. What follows is a brief outline of three management structures.

FIGURE 24

GOVERNMENT INVOLVEMENT IN THE PRIVATE METHOD OF DEVELOPMENT

Responsibility for:	Management role:						
	Project mg'mt.	Dev. Plan'g	Finance	Legal	Gov. Liaison	Const. Mg'mt.	Marketing
Planning				X	X		
Land Allocation							
Physical Services			X				
Company Housing	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Commercial							
Recreation			X		X		
Health		X	X		X	(1)	
Education		X	X		X	(1)	

(1) Construction management is performed by the Regional Hospital and School District respectively.

(2) Provision of service sector housing is independent of the method of development.

FIGURE 25

GOVERNMENT INVOLVEMENT IN THE MIXED PRIVATE/PUBLIC METHOD OF DEVELOPMENT

Responsibility for:	Management role:						
	Project Mg'mt.	Dev. Plan'g.	Finance	Legal	Gov. Liaison	Const. Mg'mt.	Marketing
Planning	X	X	X	X	X		
Land Allocation	X	X	(2)		X		
Physical Services	X	X	X	X	X	X	
Company Housing							
Service Housing	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Commercial	X		X				
Recreation			X		X		
Health		X	X		X	(1)	
Education		X	X		X	(1)	

(1) Construction management is performed by the Regional Hospital and School District.

(2) Municipality provides financing.

(3) Provision of service sector housing is independent of the method of development.

FIGURE 26

GOVERNMENT INVOLVEMENT IN THE PUBLIC METHOD OF DEVELOPMENT

Responsibility for:	Management role:						
	Project Mg'mt.	Dev. Plan'g.	Finance	Legal	Gov. Liaison	Const. Mg'mt.	Marketing
Planning	X	X	X	X	X		
Land Allocation	X	X	(2)		X		
Physical Services	X	X	X	X	X	X	
Company Housing					X		
Service Housing	(3)	(3)	(3)	(3)	X	(3)	(3)
Commercial	X	X	X	X	X	X	X
Recreation	X	X	X	X	X	X	
Health	X	X	X		X	(1)	
Education	X	X	X		X	(1)	

(1) Construction management is performed by the Regional Hospital and School Districts respectively.

(2) Municipality provides financing.

(3) Provision of service sector housing is independent of the method of development.

Management Structure and Method of Development

1. Private Method of Development:

The prime role for the provincial government is in the area of liaison with the Company/Municipality, the coordination of inter-governmental jurisdiction and expediting of approvals. A planning and priorities committee could carry out the liaison task. Such a committee would have representatives from all Ministries and Departments involved in approvals, licences, and planning. Communications with the resource industries would be through the Committee and its chairperson.

No new legislation is required to enable the committee to be formed.

The Committee would operate in such a way as to gain consensus across ministries and departments on the planning, size, location, timing and priority of townsite components and to make explicit this information.

It would be advisable to designate in the Letters Patent one or more members of the Committee as initial members of the interim Municipal Council. In this way the future residents may be represented by someone other than the Company.

The Committee would be required to function during the 6-year start-up period.

2. Mixed Private/Public Method of Development:

In addition to the Planning and Priorities Committee suggested above, an additional management structure to exercise planning, land allocation, physical and social service development responsibilities is needed.

A legal entity is required to authorize and sign the physical service contracts; therefore the Interim Municipal Council of the municipality which would be formed under Section 10A of the Municipal Act is recommended as the appropriate vehicle to exercise development responsibilities.

The Interim Municipal Council and Mayor would consist of public officials appointed as early as possible for a specific period of time with the proviso that local representation on the Interim Municipal Council is considered desirable. The phasing of local representation would be congruent with the phased development.

The Interim Municipal Council, as is the case in Alberta, would be responsible for the planning, developing and financing of all the physical services, the allocation of all lands, and the liaison with all government agencies. In addition, we suggest that the Interim Municipal Council be responsible for interpretation

of the written agreement, and for day-to-day communications with the Company, and overall scheduling project management. A written contract outlining the respective responsibilities and cost sharing between the two parties is essential if an efficient planning and development process is to be realized.

Planning approvals would be required from the Planning and Priorities Committee.

Finance approvals for expenditures would be required from the Inspector of Municipalities.

No changes in legislation are required.

The Interim Municipal Council would hire a project manager and expert staff or consultants to execute the policies and directions set by the Interim Municipal Council.

3. Public Method of Development:

In addition to the Planning and Priorities Committee suggested above, a management structure to exercise full project management, development planning, financial, construction management, and marketing development responsibilities is required.

Since an equity position may be taken in the commercial and/or service sector housing components, a legal entity is required. Two options can be considered. One is an elaboration of the Interim Municipal Council, the other a Crown Corporation. The possible role as a financial investor suggests that the Crown Corporation with full-time expert staff, over an extended period of time, is the preferred vehicle for full public involvement.

The Crown Corporation could be one that currently exists, one that is a wholly owned subsidiary of one that currently exists, or a newly created organization.

The Crown Corporation would be created with sufficient funds to finance the development. The mechanics of securing the funds have not been explored but it is assumed that methods used in Manitoba would be applicable. Planning and financing approvals would be internal to the Corporation. The Corporation's Board of Directors should include a representative from the resource industry if possible, but not a representative from the Company.

The Corporation would act as developers and petition to create a municipality at the outset. The initial Interim Municipal Council would be appointed from Corporation staff and public officials.

The Corporation would negotiate with the company to determine townsite requirements and to secure townsite commitments. A written contract or 'townsite agreement' detailing responsibilities, cost sharing and pricing is essential.

Associated with these methods of development are potential problems and solutions, costs and benefits. A large proportion of the costs and benefits are of an intangible nature. The remainder are immeasurable at this time. The rest of this chapter is devoted to a discussion of the non-quantifiable aspects of the alternative methods of development.

2.3 POTENTIAL PROBLEMS:

The problems emerging in resource town development can be classified as those dealing with risk and cost-sharing, with the efficiency of the development process, with the quality of the town and with the stability, growth and diversity of the town's economy. Potential problems are described in this section. Figure 27, found on page 98, presents a 'one phrase' summary list of the potential problems.

Risk and Cost Sharing:

R1 The resource town's viability depends on the Company's well-being. The viability of the Company depends on its production and administrative efficiency, choice of scale of venture and on world markets for the resource. It depends on the supply of coal, a non-renewable resource. The venture, and therefore the town, can fail. Such a 'total failure' will cause the Municipal Finance Authority (MFA) to absorb the cost of the municipality's outstanding debts. Problem "R1" is due to the Province having to absorb 'the risk of total failure'.

R2 The venture may fail in part. The town may fail to grow as planned. Front-end investments may not be put to use and costs may not be fully recovered. Problem "R2" is due to the Province bearing 'the risk of failure to grow as planned'.

R3 Developers make errors in planning, scheduling, administering and development. If such errors are large and obvious, then the developer may not be able to pass the costs on to the municipality. Problem "R3" is due to 'the cost of planning errors'.

R4 As the result of inflation, a large error made five years ago may now appear small. In the long run inflation can cover up errors. In the short run inflation can lead to inefficient development plans by creating a "money illusion". The developer who builds ahead of time to avoid paying inflated prices at the time the service or facility is needed is either speculating on inflation rates or making an investment which yields no "real" returns for the period of time that the facility is not needed. If something costs twice as much at some future date, it is because the dollar is worth half as much at that point in time. No social benefit is gained by building early for the sole purpose of avoiding inflation.*

Inflation may create real problems for the townsite developer who ignores it. There is often a one or two year lag between the time the Company orders lots and the time the lots are serviced and paid for. If the developer ignores inflation and offers to sell the lots at some future point in time at a price equal to their original dollar cost, then the revenues gained from the sale will not cover the cost of servicing an equal number of new lots. By not quoting prices in constant dollars, the developer is forced to keep borrowing in order to provide new lots. In the end the lot sales will not have recovered their full costs. Problem "R4" is due to 'the cost of ignoring inflation'.

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* A private developer may speculate on inflation rate differentials in the hope that the construction index rises faster than the other price indices. If such a discrepancy in inflation rates develops, then the speculator has successfully hedged inflation and made a profit out of it. In turn, such behavior helps fuel inflation. If the Provincial Government speculates on inflation, then it helps defeat policies aimed to reduce inflation.

R5 The Company may be able to shift some risk and costs to the Province by debenturing a part of the site service costs. These expenditures are normally recovered through the sale of land and not through the sale of MFA guaranteed debentures. Problem "R5" is due to the 'risk-shifting by the Company'.

R6 The Company may be able to reduce its corporate income tax liability by making unorthodox contributions to the municipality it controls. The Company should not profit from its land dealings. Problem "R6" is due to 'tax avoidance by the Company'.

R7 The Company developing a town usually bears the costs of providing the initial community facilities. It also bears the costs of administering the development process. A second company entering the town may get a "free ride": it may be able to avoid contributions to the townsite, and as a result the levels of community services do not increase in proportion to the town's population. Problem "R7" is caused by inequitable 'cost sharing among resource companies'.

R8 The Company, as a member of the community, will pay municipal taxes. When the Company's property is placed on the tax roll and is taxed at an average commercial mill rate, then the Company's annual contribution may constitute 50% to 60% of the town's revenues. As a result the residents can expand their facilities and pay only a fraction of their cost. Unless controls are placed on the municipality's taxing capability, then the Company can be unduly burdened. Problem "R8" indicates inequitable 'cost sharing policies between the residents and the company'.

R9 The original residents will have lived through the pioneering days and will have an investment in the town. The early residents may have retired a part of the debt of the central infrastructure components and basic community facilities. The new residents may appear to be getting a "free ride". This problem can become serious if the expansion promises to increase taxes. This problem has another dimension: if the town is to be self-financing during all stages and if essential services are provided from the beginning, then the early residents are burdened with taxes much more than are the late arrivals. Problem "R9" is one of establishing an equitable program for 'cost sharing between new and established residents'.

R10 Some people in the resource town will use certain facilities or services more than others. If their costs are recovered through general taxes, then all people will be burdened. If costs are recovered through user chargers, then the use of the facilities may be restricted and their 'social value' thereby reduced. Problem "R10" is the design of an equitable formula for 'cost sharing between users and non-users' for services and facilities such as fresh water, sewage disposal, municipal administration and public works, recreation facilities, and child care services.

R11 If the Company develops the town, the residents will blame the company for the town's shortcomings. If the Province were to develop a similar town, then it would be blamed by the residents. Since Provincial involvement is usually based on the rationale that it is in a better position than the Company to represent the 'public interest', the Government developer builds into the start-up

town a higher level of amenities and community facilities. This raises costs, which in turn increases the level of "contributions" solicited from the Company and the level of taxes. The Government-developed town is seen as being "too expensive" by the Company. The Government developer, by serving the residents' interests, raises the ire of Company officials. To avoid being blamed by the residents and the Company, the Province must subsidize and effect redistributions between the town and the Province. Problem "R11" is due to 'the political costs of redistribution policies'.

R12 A change in resource town development methods may apply to one identified project or it may apply to all resource towns in British Columbia. In the latter case, if the policy aims to improve the standards of community facilities in all towns, then a substantial commitment of revenues and political will is required. If the Province concentrates only on the North-East Sector town, then Problem "R12" emerges: It is the problem of making an equitable 'investment allocation among competing resource towns'.

R13 The cost of the townsite is small relative to the regional infrastructure investments, yet it is the most apparent component of the project. Problem "R13" is the creation of a "balanced" 'investment allocation between region and town'.

R14 If subsidies are applied automatically, then the Province helps the company reduce its own contributions. The automatic application of these subsidies creates problem "R14", 'the shifting of subsidy incidence'.

The Efficiency of the Development Process:

E1 Supply schedules for certain infrastructure components and community facilities may show that the per capita cost of providing a service decreases as the population increases. The savings may be the result of using different technologies to deliver the service to different population sizes. They may be the result of spreading fixed costs across a larger population. Problem "E1" anticipates 'the loss of potential scale economies' due to lack of front-end funds or due to a lack of knowledge of cost schedules.

E2 The development schedule may be disrupted by strikes in the construction industry. Problem "E2" identifies the costs of 'delays due to labour unrest'.

E3 Problems may emerge as a result of poor communication among agencies and companies. These problems may affect the planning and building of the infrastructure, the school facilities, and the health facilities. They may slow down the development process and increase costs. Problem "E3" identifies 'delays caused by administrative inefficiency'.

E4 The developer may not be able to secure the grants offered by provincial subsidy programs. Water, sewer and recreation grants are offered by the Province but these funds may not be available to a new community at the time when they are most needed. Delays in the provision of needed services may be caused and scale economies may be foregone. Problem "E4" is the result of 'delays in the release of provincial grants'.

E5 In British Columbia, resource towns appear to have been developed by companies on a one-shot basis. The experience of the company managers who have gone through one development process is often not drawn upon in the development of other new towns. The loss of experience prevents the emergence of a "pool of expertise". Problem "E5" is 'the loss of townsite development expertise'.

E6 Side- and after-effects of plans are not always foreseen. Problems may emerge after the town has been started. Planning expertise is required throughout the different stages of the town's growth. If new planners are called in each time a contingency plan is required, then the planning process is inefficient. Problem "E6" is due to 'the lack of continuity of planning'.

E7 The concept of "efficiency" can be applied to the programming of community facilities. A development program which yields facilities that are not valued by the residents is a wasteful one. Resident participation in facility programming can help ensure that the facilities most wanted are built first. Problem "E7" is due to 'the lack of resident participation'.

The Quality of the Town:

Q1 Resource towns are often said to bear the "Company Town" stigma. The residents' sense that the Company controls both their work and civic welfare creates anxiety and dissatisfaction. Problem "Q1" is 'the prevalence of the Company Town stigma'.

Q2 The quality of townsite layout varies across resource towns. The least costly plan is not always the most aesthetic and is not necessarily the one making best use of the town's natural surroundings. Problem "Q2" is 'the quality of townsite layout'.

Q3 Alternative townsite locations may present themselves. The Company and the residents may have different criteria for selecting a site. The Province may represent the 'public interest' in site selection and, as a result, conflicts may develop between Government and Company planners. Problem "Q3" is 'the quality of the town's location'.

Q4 Employees of resource companies often enter into agreements whereby the employer guarantees their first mortgage and offers them a second mortgage. The employee usually must agree to a "buy back" clause which gives the Company control over the housing stock. In most cases the "buy back" clause requires the person who leaves the Company for any reason to sell the house back to the Company at a price equal to the sum of the payments made by the employee. The employee therefore loses the benefit of any price increases in the market value of his or her house. Problem "Q4" identifies employees' dissatisfaction with 'the Company's housing buy-back contracts'.

Q5 While the Company helps the employees buy houses, the services sector people must fend for themselves. They are often not able to finance a house or find rental accommodation. The service sector people usually have no alternative but to live in trailers. Problem "Q5" is 'the lack of service sector housing'.

Q6 To encourage the entry of business-people and the growth of the commercial sector, the townsite administrator often grants monopoly rights to the first commercial developer. This guarantee normally applies for the first few years only. By the time the guarantee has expired, the initial developer may have sufficient control over the commercial sector to be able to disuade potential competitors. As a result, problem "Q6" emerges; it is 'the lack of commercial development'. This problem expresses itself in the lack of competition in the commercial sector and in the consumers lack of options in choosing retail outlets.

Q7 Single employees may have little choice of accommodation. Their "barracks" may be located outside the town and the men and women are virtually excluded from the community. Suitable rental accommodation is often not available to single people. In a sense, the single person is discriminated against; native people are discriminated against more overtly. Problem "Q7" is due to 'housing discrimination on the basis of race or marital status'.

Q8 At the start, the town lacks a tax base on which its administrators can borrow in order to provide community facilities. To attract and to keep employees the Company often contributes to the provision of community facilities. Despite this, the level of services is usually low and the residents forego many of the services enjoyed by their counterparts living in larger towns. Recreation, education, health facilities as well as road access and communication services may be minimal in the start-up town. Problem "Q8" is 'the lack of services and facilities in the start-up town'.

The Town's Stability, Growth and Diversification:

S1 Lay-offs, caused by the Company changing its production plans, create hardship, anxiety and a sense of uncertainty. Inadequate feasibility studies may lead the Company to make errors in production plans. Correction of the errors can lead to large-scale lay-offs which not only affect the people who have to leave, but also the morale of the remaining residents and the commitment of the town's business-people. Problem "S1" indicates Company-caused 'fluctuation in the level of employment opportunities'.

S2 When the Company exports the resource by rail, the Company's, and therefore the town's, stability is affected by the railway company's relationship with its labour union. If one company is granted sole rights to the tracks, then the town's stability is further reduced. "The town can be held to ransom by the railway workers" (Editor of the Mackenzie newspaper). Problem "S2" is the 'uncertainty created by monopoly trackage rights'.

S3 Business-people's perception of the town's stability and future viability determines their propensity to invest in it. It affects the growth rate of the commercial sector and the extent that the town's economy diversifies. Problem "S3" is associated with 'the business-people's perception of stability'.

S4 Growth and diversification of the service sector can be hindered by granting monopoly rights to one developer. It can also be hindered by stringent zoning by-laws, by high commercial land prices and by the lack of reasonably priced retail floor space. Marginal enterprises, by being forced onto relatively inaccessible "industrial"

land, may in fact be "zoned out" of the town's economic life. Problem "S4" identifies 'restrictions on the entry of small businesses'. This problem results in lack of competition in the commercial sector.

S5 'The lack of employment opportunities for women.' The achievement of a balanced and stable community is not possible without the creation of employment opportunities for women. This, perhaps, is the most important of the problems listed.

FIGURE 27

SUMMARY LIST OF POTENTIAL PROBLEMS

Risk and Cost Sharing:

R1	the risk of a 'total failure'
R2	the risk of a 'failure to grow' as planned
R3	the cost of planning errors
R4	the cost of ignoring inflation
R5	the cost of risk-shifting by the Company
R6	the cost of tax avoidance by the Company
R7	cost sharing among resource companies
R8	cost sharing between the residents and the Company
R9	cost sharing between new and established residents
R10	cost sharing between users and non-users of services
R11	the political cost of redistribution policies
R12	investment allocation among competing towns
R13	investment allocation between region and town
R14	the shifting of subsidy incidence

The Efficiency of the Development Process:

E1	the loss of potential 'scale economies'
E2	delays due to labour unrest
E3	delays due to 'administrative inefficiency'
E4	delays in the release of Provincial grants
E5	the loss of townsite development expertise
E6	the lack of continuity in planning
E7	the lack of resident participation

The Quality of the Town:

Q1	the prevalence of the 'Company Town' stigma
Q2	the quality of the town's layout
Q3	the quality of the town's location
Q4	the Company's housing buy-back contracts
Q5	the lack of service sector housing
Q6	the lack of commercial development
Q7	housing discrimination by race or marital status
Q8	the lack of facilities in the start-up town

The Town's Stability, Growth and Diversification:

S1	fluctuation in the level of employment
S2	uncertainty created by monopoly trackage rights
S3	the business-people's perception of stability
S4	'restrictions on the entry' of small businesses
S5	the lack of employment opportunities for women

2.4 POSSIBLE SOLUTIONS:

In this section the possible solutions are discussed. The extent to which the problems listed in the last section can be resolved within each development method will be assessed. Before proceeding with the solutions, we wish to qualify them in the following few paragraphs.

An undesirable state of affairs gives rise to a potential problem. The problem, however, may be resolved at various levels of generality because any planning problem can be seen as being merely a symptom of some broader, more general problem. Opinion and judgement can not be avoided when setting boundaries on planning problems. Opinions and judgements, therefore, affect the formulation of solutions, and the way in which they do can be seen in the following example.

> It may be possible to remove 'restrictions on the entry of small businesses' (problem S4, page 97) by including strict regulations when issuing the 'letter of patent'. In theory, competition in the town's commercial sector can be stimulated by some kind of a legislative act. But this form of solution does not appear to us to reach the core of the problem. We see the 'restrictions to the entry' problem as a symptom of the more general problem created by the Company owning the land. A solution affecting the control over land allocation appears to be both more efficacious and more likely to resolve other, as yet unforeseen, problems that could be created by the Company maintaining control over the land resource.
>
> One of the main distinctions between the Private and the Mixed methods of development, as we have defined them, is in the shift to the Public Sector of the responsibility for land allocation. In our opinion, therefore, the solution to the 'restriction to entry' problem is effected by a policy which calls for at least a Mixed method of development.

Most of the solutions described in this section have been subjected to this kind of scrutiny and most involve the kind of judgements that were made explicit in the example just discussed.

Another qualifier must be added. Some problems can be resolved by changing administrative procedures within the Provincial Government. Problem E4, 'delays in the release of Provincial grants', is an example. Being "outside" consultants, we can not be nearly as familiar with Government practices as are the members of the Client group. We can not tell whether the problem for the North-East coal town can be resolved simply by a well-placed phone call or whether its solution requires the restructuring of the grant application procedures or the changing of the programs themselves. When dealing with such problems, our aim is to identify them and to briefly indicate the areas in which solutions can be sought. Since opinion and judgement are the basis on which the move from a problem's perception to its resolution is made, we must leave with the Client group the task of specifying in detail the solutions which involve changes in Government procedures.

With these qualifications, we offer the following list of possible solutions to the problems identified in the preceding section. Figure 29 on page 130 presents a 'keyword' summary of problems and solutions.

Risk and Cost Sharing:

R1 The Province, by guaranteeing the municipality's debentures, absorbs the risk of a 'total failure'. This, however, is not a problem because the method used to secure the regional investment will eliminate the chance that the town fails. The "umbrella effect" of the regional investment eliminates the risk of a 'total failure'.

Abandoning the town is tantamount to writing off the entire investment. Even if the initial Company were to fail, the

Province could not allow the regional infrastructure, and therefore the town, to go unused. As a result, the townsite planning can proceed without considering the implicit cost of the "insurance premium" that is associated with the municipality's debentures.

R2 The risk that the town fails to grow as planned is real and the cost associated with it can be large. Two kinds of costs are involved: direct costs, which the developer can not recover through local taxes; and indirect costs due to the loss of opportunity to reap scale economies. The latter problem is discussed under E1, 'the loss of potential scale economies'.

If either the Mixed or the Public method of development is used to develop the town according to the 'build in anticipation of the town's ability to pay' principle, then the Province may have to bear any debt not borne by the municipality. Since the Public method involves the Province as an investor, the cost to the Province of the town's failure to grow as planned is the greatest under this option. The Province, should it adopt the Mixed or the Public development method, may reduce cost associated with this risk by:

1. not investing in the townsite until the Company's planned employment schedule is made available;

2. securing a bonded guarantee from the Parent Company that it will act according to its planned employment schedule. If this is not possible, a penalty clause should be inserted in the townsite agreement which will cause a special levy to be placed on the Company for the purpose of retiring some of the extra debt incurred due to over planning.

3. reserving the right to terminate that part of the Company's mineral leases which is not being exploited by a fixed date. The Province can then lease the rights to another company.

4. requiring the Company to pay the interest costs on the money used for the interim financing of the site services requested by the Company;

5. obliging the Company to manage and start retiring any debt incurred for the purpose of providing the site services requested by the Company. This stipulation would become effective only if the Company does not conclude, within a fixed period of time, the transaction initiated by its request for lots.

6. placing the Company's property and minesite investment on the Municipal tax roll. This will ensure that the Company bears a part of the costs incurred by the town's 'failure to grow'. This move would also check the Company's propensity to make overly optimistic forecasts.

7. selling the mineral rights on the condition that the Company guarantee the feasibility of its operations. If a mineshaft proves to be not feasible, the Company must request permission to close its operation before de-pillaring it. The Province retains the right to have the Company sell the shaft to some other company which may be able to continue the operation. The cost of errors will be capitalized and borne by the first company.

R3 If large and obvious planning errors are made, then the developer will bear their costs. In the Private method, the cost of planning errors is borne by the Company and by other private investors who develop the commercial sector and small businesses. In the Mixed method both the Province and the Company share the risk. In the Public method, the Province's share is the greatest simply by virtue of the fact that it is the major investor and developer.

Errors may be made in cost estimation, population projection and land allocation. If the Province acts as the developer, then the cost of planning errors can be reduced by:

1. Negotiating with the Company and entering into a townsite agreement after firm cost estimates have been prepared. The Government should not fix the sales price of lots before the construction contracts for the infrastructure have been let. Company contributions solicited on a facility program basis rather than a fixed dollar amount will shift extra costs incurred in providing the facility on to the Company.

2. Overly optimistic population forecasts can leave an unbearable financial burden on the town. Under-estimation of the town's growth rate and equilibrium population can leave the town without space to grow and may lead to the building of inefficient water supply and water treatment plants. If the Province counts on other companies to enter the area, and plans the town accordingly, then the solutions listed under R4 can not be invoked and the Province can do nothing to shift the risk that is associated with such a development strategy.

   The cost of under-estimation will be felt if the selected site cannot support the extra population. If two different sites suit two different town sizes, then the choice will be based on the best estimate and guess made by the Province's planning staff. The burden of unlucky guesses will rest with the Province should it become the developer or the main investor in the townsite. Aside from caution in making the population forecasts, little can be done to avoid this risk.

   If the Province leaves the responsibility for the development with the Company and if it does not invest in the townsite, then the Province does not bear the risk that is associated with erroneous population forecasts.

3. Lack of co-ordination between administrators in the capitol and the personnel on site may create costly errors in land allocation.* Potential problems can be pre-empted by having the administrator in charge of development located on site. This is of concern to the Province only if the Mixed or Public development method is chosen.

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* In Grande Cache, the Province attempted to reap economies of scale by "partially" servicing more lots than it had immediate need for. An error, due to the lack of coordination between site and home office personnel, caused the Board of Administrators to have to "fully" service many more lots than could be sold. To help the town out, the Alberta Housing Corporation bought the excess lots for over a million dollars. Had the Administrator been on site, the land allocation error would most likely not have been made and the history of Grande Cache would read better.

R4 Cash-flow problems will emerge if an inflation clause is not inserted in price quotations. The solution to this problem is self-evident: insert an inflation clause.

R5 The Company can shift some of the risk of its investment to the Province by debenturing a part of the site service costs.[1] This potential problem emerges only in the Private method of development and it can be overcome easily by inserting a clause in the 'Letters of Patent' which itemizes the costs that are to be recovered through the sale of lots. Land sales for public facilities should be exempted from the clause.

R6 The Company can donate excess land to the Municipality and realize a substantial profit by avoiding taxes.[2] This potential problem emerges only in the Private method of development; the Province can avoid this by leasing the townsite land to the Company or by selling it with the provision that land which remains unused by a certain date will be returned to the Province at the original, inflation-adjusted price. If the Province were to guarantee a 'buy-back' of unused land at a price which recovers the cost of the services, then the Province would absorb the risk associated with the over-production of lots and be encouraging inefficient townsite layouts.

R7 The problem of splitting equitably townsite costs across resource

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1. This occurred in Mackenzie for water and sewer costs.
2. In Mackenzie, the Company bought land for $10 per acre and sold the excess land for $1000 per acre. The Company gave a gift of over one million dollars to the municipality, which they then spent the money buying the Company's excess land. Since this exchange also reduced the Municipal tax base, it did not net the town any great benefit. The Company could write off the "Gift" and avoid future municipal taxes on the excess land. Since the Company did little to cause the price of land to increase a hundred fold, the Company should not be allowed to gain from such "changes in land value".

companies entering the town at different points in time can be partially overcome by placing their property on the Municipal tax roll. However, a part of the cost-sharing problem remains and its resolution should aim not only at securing a fair split of original costs across the companies, but also at the securing of additional facilities for the town. The following points should be considered:

1. In the Private method of development, very little can be done to ensure an equitable cost-sharing plan across resource companies.* The first company may be granted a reprieve from Municipal business taxes for a fixed number of years. New companies may be charged a business tax, thereby relieving a burden which would otherwise be borne by property tax-payers. We don't know whether or not everyone would perceive this scheme as being equitable.

2. If a Mixed development method is used, then the second company can be "charged" for the right of entry into the town. The Province can, in theory, sell or lease land to other resource companies on condition that an "equitable" contribution is made. The problem with this solution is that it calls for the Province to discriminate among companies. A company with few plants will not be able to raise the funds without seriously impairing its borrowing capacity. The company's 'ability to pay' is a function of their overall scale of operations, and not of the size of their North-East Sector operation. As a result, the Town's Administrator can not gauge ability to pay by examining the company's North-East Sector plans.

3. The special levy on "other firms" is problematic if the Province discriminates when determining the size of the entry fee. It then becomes subject to criticism for apparently inequitable behavior. A fixed levy is problematic because it will lead to the exclusion of small companies, thereby reducing the town's chance for growth and diversification.

4. In the Public development method, the Province actually invests in the town's facilities. The first company's contribution can be financed through special debentures.

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* This potential problem emerged in Mackenzie but no one appeared to be overly concerned. British Columbia Forest Products (BCFP) contributed substantially towards community facilities, but the second major employer, Finley Forest Products (FFP), did not. The BCFP managers simply accepted the fact that FFP was a local firm that did not have a "Parent" on whose assets it could borrow. FFP could not finance townsite contributions without seriously jeopardizing its capacity to finance the development of the Mackenzie plant.

In the townsite agreement, the Parent Company is obliged to pay a fixed annual charge. The agreement may also specify that this charge will be split among all the other resource companies that may enter the town at a later point in time. This formula may solve the equity problem but do little for the town. It is unlikely that the initial company's contribution will be increased by a promise to have the charge reduced when other companies enter the town at a later date.

The more involved the Province becomes, the more methods are available but none of the methods guarantees success. This difficulty is caused by the fact that any method used to split costs equitably across resource companies will either be deemed to be unfair by the newcomers or it will reduce the chance that the town grows.

A fixed cost-sharing formula is likely to have the side-effects which are more problematic than the original problem. Since all other methods are problematic, we recommend the use of 'moral suasion'. If applied with a steady force while negotiating the mineral rights, the other companies may be persuaded to contribute to the community facilities according to their "ability to pay". Large companies may pay less than their fair share, but small ones will not be excluded. This technique requires the setting up of a capital fund into which the contributions are placed.

R8 Placing the Company's property on the Municipal tax roll is standard practice in British Columbia. Since the Company contributes a substantial portion of the municipal tax revenues it is possible for residents and town council to vote for expensive facilities and "unfairly" burden their largest tax payer.

A ceiling on the municipality's indebtedness partly protects the Company as well as the Municipal Finance Authority. Under the

Public development method the Province may set a high ceiling or legislation may give the public developer the right to use discretion in determining the town's debt. It then becomes possible for the Company to be unduly exploited by a resident-controlled town council. In the ublic development approach a mechanism giving the Company the right to appeal "discriminatory" municipal fiscal policies will have to be devised.*

R9 The two development schedules presented in the first chapter have different implications for cost-sharing among residents entering the town at different points in time. If the start-up facilities are built to serve a higher design population, then the initial residents will enjoy the basic services without being required to fully pay for them. A Provincial or a Company subsidy is needed to cover the debt costs if the future population is to be free of the burden of compounded interest charges. If the Province or the Company adopts a policy of providing the start-up town with an adequate level of services, then it does so because it deems it to be equitable. The 'horizontal equity' criterion is evoked to suggest that all B.C. residents have the right to a minimal level of services regardless of the age of the town they live in. The costs of carrying the debt ought to be borne by the Province or by the Company and not by the new arrivals to the resource

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* This potential problem was recognized and pre-empted in Leaf Rapids. The Company pays almost two thirds of the Municipal taxes. 2,400 residents have good recreation facilities but now many want a swimming pool. Since the residents share of the cost would be one third, it is likely that they will favour an increase in taxes to pay for the facility. Under the Ruttan Townsite Agreement the Company has the right to appeal a tax increase. Recently the Company requested and was granted a change in the Agreement which removed its obligation to pay for additional capital improvements.

town who have enjoyed as few of the benefits from the early facilities as did anyone else in the Province.*

Should the incremental "pay as you go" strategy be used, then the equity problem arises only if the town's expansion threatens to increase the taxes that the initial residents have to pay without also offering them an equal increase in benefits. Such an increase could be the result of the need to expand the central water systems. The CMHC loan forgiveness, grant, and preferred interest rate program for financing these systems helps to eliminate this potential problem. Existing Provincial programs may also help alleviate this problem. These programs lead to an equitable distribution of the cost of the expensive plants and we recommend that they be applied to the town after the start-up systems have been established. The cost recovery of the initial capital investments will be dealt with next.

To summarize:

1. If the start-up town is supplied with the design population's facilities, then the Company or the Province will have to offer a subsidy in order to secure an equitable distribution of costs across residents arriving at different points in time. The subsidy should offset the cost of carrying the debt incurred by building facilities 'in anticipation of the town's ability to pay'.

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* The Alberta New Towns' Act has a provision to cover this eventuality. The Municipal Finance Corporation "advances" funds to the developer and the interest rate is subsidized and the terms are set by the Municipal Administrator. The New Town is not obliged to repay the loan until its design population is reached. In Manitoba, the Leaf Rapids Development corporation received public funds to finance the town's facilities until such time as they can pay for themselves. In Leaf Rapids the Company bore the costs for the water supply and sewage treatment through special debenture. In both cases a Provincial subsidy was used to spread equitably costs across people arriving at different points in time.

2. The Provincial assistance programs for financing expanding the water systems should apply to the towns no matter which development method is selected.

R10 Two criteria are often used when assessing the fairness of a cost-recovery instrument. One calls for the costs to be recovered from those who gain most benefit from the public expenditure; this is the 'pay according to benefits received' criterion. When benefits are distributed unevenly across a population, then it is only fair that those who gain most pay the most. The other calls for the distribution of the costs across households and firms according to their 'ability to pay'. This criterion rests on the belief that an equitable distribution of the costs of the public services from which every one benefits equally is one which burdens every one equally. An equal burden is effected by having the people make an equal sacrifice, not necessarily an equal payment.

The design of a cost recovery instrument is based not only on the equity but also on fiscal and economic efficiency considerations. The cost of collecting a specific tax or user charge may be sufficiently high to preclude the use of the instrument on the grounds of its fiscal in-efficiency. When evaluating the economic impact of a tax or a charge we consider the effect the instrument has on the consumers' behavior. A charge which causes a facility to be under-used is one which decreases the social value of the capital investment. A trade-off between the equity and the efficiency attributes of taxes and user charges must be considered in the final selection of any cost-recovery instrument.

The financing of schools and health facilities will not be examined here because the Province has well-established programs. The

following services will be considered: Municipal administration and public works, fresh and used water systems, operating costs for these systems, on-site services, recreation facilities and day care services. Figure 28 on page 111 presents the summary.

1. Most of the services rendered by the town hall and the public works department are of equal benefit to all households and firms in the town. The 'ability to pay' criterion should therefore be brought to bear on the selection of the instruments for recovering capital and operating costs. In a resource town the value of property, with one major exception, represents one's ability to pay. The exception is created by the trailer community. In resource towns mobile home owners may earn as much as the other households living in Company-subsidized houses. The value of their property, therefore, does not reflect the two groups ability to pay. The conventional method of recovering municipal capital and operating costs through the property tax is recommended. An annual licence charge for the trailer facilities may equalize the burden across home owners and trailer residents.

2. Since fresh and used water systems are essential to everyone in the community, all can be said to benefit equally by their presence and the 'ability to pay' criterion should be used to select the instrument for recovering the municipality's share of the capital cost of the central components of these systems. The property tax is recommended along with the licence for trailer parks.

   The determining of the municipality's share is the subject of negotiations between the Company and the Province. We can see no reason why the Province should pay for any extra costs that may be incurred in the developing of the resource town. The town can be seen as an investment created by the Company's desire to profitably extract a resource. The Company, being the main beneficiary of the venture, ought to pay any extra costs that it can not recover from the residents by means of taxes. If it does not, it may not be able to attract and keep desirable employees. There is, in our opinion, no equity argument telling why the Province ought to finance or subsidize the start-up costs of the water systems! (In Leaf Rapids, the Company paid for these components.)

3. Operating costs can vary with the load placed on the system and therefore the 'pay according to benefits received' criterion should apply and a user charge for the operating costs should be considered. The user charge on water and sewage has the added advantage of making residents aware of the cost of water and disuade them from being overly wasteful. The only problem with the user charge is in

FIGURE 28

RECOMMENDED COST RECOVERY CHARGES BASED ON THE 'PAY ACCORDING TO BENEFITS RECEIVED' PRINCIPLE

Service	Property Tax	Business Tax	User Charges	Lot Sales	Company Contributions	Provincial Contribution
1. Municipal services	X	X				
2. Water system, capital	X	X			X	
3. Water system, operation			X			
4. On-site services				X		
5. Recreation, capital	X				X	X
Recreation, operating	X		X			
6. Day care services	X		X			X

its cost of collection: water meters have to be bought, installed and read. The final choice between a fixed charge on each lot and a user charge can be made only after the cost of collecting the variable charge is established. The municipality should determine whether or not the price of an equitable cost-recovery instrument makes it worthwhile.

4. The conventional system of recovering site specific costs through the lot sales is recommended. People with large lots can be said to gain greater benefits from their property than do people with small lots. They most likely will also be more 'able to pay' the larger charge. The recovery of site specific costs through the sale of lots satisfies both equity principles. The cost of streets, curbs, sidewalks, street lighting, and water and sewage distribution should be recovered through lot sales.

5. The 'pay according to benefits received' criteria can be applied to the cost recovery instruments for the recreation facilities. Those who derive value from the facilities ought to pay for them. User charges are recommended to recover only a part of the operating costs because many non-users derive benefits from the presence of the facilities.

   The recreation facilities help the Company attract and keep desirable employees. This fact is recognized and is the basis for the Company's contribution. The Company, as a beneficiary, ought to pay a part of the capital and operating cost of the facilities.

   Residents will value the option of being able to use the facilities and the "option" constitutes a benefit. Some residents will value the fact that the children of the town have a place to go, that they are "off the streets". We can only assume that the value of the presence of the facilities is equal across the non-users and therefore the 'pay according to ability' criterion is applied and the property tax is recommended.

   The rest of the Province derives benefits as well. Organized recreation activities help socialize the children who will eventually be living elsewhere. In a sense the benefits of the facilities (as are the benefits of the education facilities) are exported to the rest of the Province. The rest of the Province should therefore contribute to the facilities as it does through the CRFF program.

   A user charge is recommended to recover only a part of the operating costs. Specifically, it should recover no more than the costs incurred by the extra use of the facilities. User charges should not be used to recover

capital costs, nor the normal operating costs required to maintain the facility as it is. If it did, then the charge would cause people to not take full advantage of the facility. The facilities would be under-used and the price for their use would reduce the social value of the investment. Furthermore, the charge that is levied should not be a door charge, for this would also unecessarily reduce the use of the facilities. The user charge should be levied as an annual fixed fee for the right use of the facilities as often as the user wishes. The charge can be levied on organized users who wish to have the facilities for their own use during specific periods of time.

This proposed formula for recovering the costs of recreation facilities is not very different from that implicit in standard practice. We can not say, without doing an indepth study of this facility, what proportion of the costs should be borne by each group of beneficiaries.

6. Day care services offer identifiable benefits to a specific group of people. They also offer benefits to the whole of the British Columbia society. Their financing formula can be based on either of the two equity principles advanced earlier. The choice of the boundaries to this problem is essentially a political one and the choice of the boundaries determines the solution.

   To provide parents with the opportunity to pursue organized and free time activities other than child-rearing, then the institution of free day care is one way of helping this event come about. If the "child care" problem is seen at this broad level, then the 'pay according to ability' principle applies because all members of society will gain from the solution.

R11 The Province <u>appears</u> to be in a "no-win" situation from which it can not entirely escape. The situation can be characterized as follows:

1. If the Company develops the town, the potential benefits of using the Mixed or the Public development methods will be foregone. The Company will be blamed for the Town's troubles. The Province may be blamed for neglecting the residents of resource towns.

2. If the Province undertakes a company-like development of the town, then the residents will blame it for the low level of start-up facilities.

3. If the Provinces develop the town according to some higher standards and recover the extra costs by taxing the Company, then the Company will blame the Province for excessive spending and for undue interference.

4. If the Province develops the town and, to avoid being blamed by the residents and the Company, it heavily subsidizes the development, then it may be criticized by the rest of the Province for excessive Government spending.

There is no direct solution to this problem. The Province may attempt to take a low profile in subsidizing the development process and offer help in co-ordinating and moving the public departments which will become involved in the provision of social services. The Provincial assurance that its normal subsidy programs for recreation facilities and water systems will apply and that the funds will be delivered promptly can help the town considerably while keeping the Province's profile in the development process low.

R12 Ideally, an efficient allocation between regional and townsite investments is balanced at the margin to ensure that the benefits from the last dollars invested in each project yield equal social benefits. This statement can be rephrased simply: A scruffy town at the end of a half-billion dollar rail-line makes the entire venture look bad. Surely the Province can ensure some "quality" in the town which will raise the image of the entire project. This approach, however, raises the 'horizontal equity' problem. The 'horizontal equity' criterion calls for 'people who are equally circumstanced to be treated equally' by the Government's tax and expenditure policies.

The need for equitable investment allocations among resource towns competing for Provincial assistance becomes a major problem if the Mixed or Public development methods are used. The residents of other towns in need of facilities can justifiably consider extra

expenditures on the North-East town to be unfair unless they receive similar benefits.

In Alberta the problem was avoided through the New Town legislation which applied to all developing towns in the Province. In Manitoba, a Crown Corporation acted as a buffer between the Provincial Government and the Leaf Rapids project. As a result, the inequity of subsidizing heavily one town and not others did not become too apparent. We believe that the 'horizontal equity' argument precludes the use of line agencies in financing, building, managing and administering the North-East town unless a general resource town policy is adopted which offers similar aid to other towns which are similarly circumstanced. To summarize:

1. If the Private development method is used, the horizontal equity problem will not emerge and none of the benefits offered by the Mixed or the Public development methods will be reaped.

2. If a line agency is used to develop and finance the North-East Sector town, it will have to do so in the context of an overall "Resource Town Policy" which offers similar assistance to all eligible towns. If it does not, then its actions are inequitable.

3. If a Crown Development Corporation were to build the North-East coal town, then the Province may escape a part of the blame for inequitable policies by having the Corporation as a buffer between the townsite venture and the Government in power.

R13 Assuming that the horizontal equity problem can be resolved, the Mixed or the Public development methods appear ideal for ensuring the 'quality' of the North-East sector town. With either of these methods, the Province can control the development process and be sure of obtaining the results it seeks. The extra costs involved

in making this a "model town" would be small compared to the costs of the regional infrastructure.

If the horizontal equity problem is not resolved, then the Province, in seeking to "balance" the investment allocation between the townsite and the region, will be requested to also "balance" investments across competing resource towns. If this is seen as a serious potential problem, then the Province must maintain the low profile discussed earlier. On the strength of the regional investment, the Province can attempt to negotiate substantial Company contributions to the town. The Company's contributions to the townsite should become a part of the package agreement, in which the Province commits itself to building the regional infrastructure and sells the mineral rights. The Province's negotiators maintain the superior bargaining position by withholding their agreement to build the railway and to sell the mineral rights until negotiations on the townsite components appear to be reaching a satisfactory conclusion. In this way the problem of achieving a "balance" between regional and townsite investments can be used to the Province's advantage at the negotiating table.

If this approach is no longer feasible, then the minimum requirement of the Company would be to have its townsite plans approved by the Minister of Municipal Affairs before the mineral rights were sold.

R14 To avoid the shifting of subsidy incidence the Province's assistance programs are not automatically applied to the new town. Their applicability is determined by negotiations which ensure that the Company does not reduce its own contributions on account of the subsidy.

The Efficiency of the Development Process:

E1 The cost-schedules for the water supply and sewage treatment plants may show increasing returns to scale. Costs in the long run may be reduced by building large plants in the beginning. These cost schedules are dependent on site conditions and they can not be estimated before site has been selected. The potential problem in the case of water systems, however, is pre-empted by the Province's assistance programs should the Mixed or the Public development methods be selected. The private developer, by seeking to minimize his cash outlays, may forego the chance to reap economies to scale. Whether or not this is likely to cause greater long run costs than necessary, can be determined only after the specifics of the town's site have been examined.

Scale economies may also prevail in the provision of the municipal, recreation, health, education services. Their identification is a complex task. If the Province wishes to consider a general resource town strategy, then a thorough examination of cost schedules is warranted. The potential problem may be resolved by further study.

Scale economies were said to exist in the development of Leaf Rapids. The Crown Corporation, by being the developer, land manager and property manager, could consolidate staff functions and thereby reduce the cost of administration. We have no evidence to support this conclusion, other than a statement made by the President of the Corporation. Since data on the time and effort administrators spend on a project is very costly to obtain, we do not recommend further study of this subject.

If scale economies exist, then they can be gained under each of the development methods. The attempt to gain them, however, increases the risk associated with a failure to grow. The private developer is likely to be highly risk averse as well as short of start-up funds. Subsidies may be needed to ensure that efficient plans are executed. This increase in public financing may make it desirable for the Province to become involved in the development process in order to control the way in which its funds are used.

E2 The townsite development can be held up by construction strikes. In Leaf Rapids the developer pre-empted this problem by negotiating an agreement with the union which guaranteed 1) that the townsite developer would use only union labour, and, 2) that the union in return would not strike and hold up the project. This solution worked.

E3 The efficiency of administering private and public developments can be increased by clearly defining the responsibilities of Province and Company at the outset. All contracts should be negotiated through a full time liaison person.

With the Private development method, a full time Provincial employee should be assigned the task of coordinating the public sector's development responsibilities. This person would ensure that the public agencies responsible for service delivery are reasonably prompt. A private developer cannot coordinate a public department. The liaison person, to be effective, must have access to all Ministries.

Under the Public development method, all contacts should be

through the Company's liaison person. This person should be named and the public developer should have a say as to who the person is.

Correspondingly, the senior personnel of the public developer should be involved in the negotiations, and these negotiations should lead to a Townsite Agreement. The public developer must be a legal entity and have the authority to sign contracts. The need for a single person from each agency to carry out coordination was stressed by Mr. Gordon of the Leaf Rapids Development Corporation. Only in this way can the public developer be assured that the Company does not "divide and rule".

Most of these arguments can be applied to the Mixed method of development. When using a "line" agency to carry out the development task, the possibility of inter-agency conflicts emerges. In Alberta such conflicts have created a bottleneck which is slowing down the expansion of Grande Cache. As "outside" consultants, we are in no position to judge whether or not such problems are likely to emerge in British Columbia. We suggest that the Client group explore the implications of involving the various Ministries in the townsite development process.

In our opinion, a strategy calling for the Government and Company to go hand-in-hand in building the new town is not efficient unless responsibilities are clearly defined in a written contract. Without a contract that delineates responsibilities at the outset and removes the need for joint decision-making once development starts, the administration of the Mixed Method of development will be made inefficient by conflicts between the representatives from the Company and the Province.

The need for defining in detail each party's responsibility before development starts, and for maintaining communications through a full time liaison person, cannot be over-stressed.

R4 Since the efficiency of the development process for a new town can be affected by the availability or delay of funds, the new town should take priority over existing towns in the queue for Provincial assistance. This applies specifically to assistance programs for recreation and physical infrastructure.

The need for basic facilities in a new town is usually greater than the need for expanding existing facilities in an established town: the provision of a health clinic where none exists can solve more pressing problems than the expansion of an existing clinic. The new town should therefore be given priority.

Existing towns, realizing that they will have to wait for funds to be released, can plan ahead and apply before their need becomes critical. At present, this can not be done in new towns. Since the need for the facilities becomes pressing shortly after the resource contract is signed, the developer is pressed for time. This problem can be resolved by early Provincial involvement in the development stage. The program, cost estimates and global funding requirements can be prepared in anticipation of the need for a new town. This is now being done in the North-East sector case. The head start would put the Province in a good bargaining position with the Company and in this way the new town can enter the queue for funds before their need becomes pressing. This incremental approach to the problem can be used under each of the development methods.

If it is desired to secure a quality start-up town with a full range of essential services, then the Mixed and Public methods of development are argued. It is unlikely that by initiating only the grant application procedure early on in the development process, there will be sufficient funds. The availability of funds from the start is therefore a necessary component of these development methods. In Alberta and in Manitoba the front-end funds are provided to the Government developer through an Order-in-Council. In Alberta subsidized advances are offered from general revenues. In Manitoba the Crown Corporation is funded directly by the Minister of Finance. An Order-in-Council approves the Corporation's budget and causes a prime-rate advance to be issued. The Townsite agreement commits the Company's contributions. Once the town is built the costs can be recovered by the usual methods and the Town Administrator can place the municipality in the CRF fund queue in order to have the Province reimbursed for 30% of the cost of the facility. Under the Mixed or the Public methods of development, the Province assumes the burden due to delays in the granting of Provincial funds.

E5 The Mixed or the Public methods of development help assure that the development expertise is retained for use in other projects. If a Ministry's staff becomes involved in the development of the North-East coal town then the learning experience will prove useful in the future. Private companies tend to develop towns on a one-shot basis and the expertise is often lost.

E6 The maintaining of continuity in the planning process can be carried out through the Mixed or Public development methods.

E7 Resident participation is desirable not only for the sake of its political implications but also for reasons of efficiency. A facility that is not valued by the residents is one on which funds have been wasted. Resident participation in the initial planning is not possible for obvious reasons. Their input into the decisions on the recreation facilities is essential. To give the residents a chance to participate in the planning of some of these facilities should be delayed. The Province's and Company's contributions should be secured at the outset and placed in a capital fund which becomes available to the Municipality at such time that the townsfolk can exercise control over the investment decisions.

This potential problem can emerge in all three development methods and the solution in all cases is the same.

The Quality of the Town:

Q1 The 'Company Town' stigma can be removed only through the Mixed or Public methods of development. In Mackenzie "the Company did all but shout from the rooftops that 'this is not a Company Town'", but their efforts were to no avail. In Grande Cache residents proudly proclaimed that "this is not a Company Town".

Q2 The quality of the town's layout cannot be legislated. Quality control can be effective only by having the Province actively involved in the planning. The Province can do the planning, or have it done, regardless of the method of development. By choosing the Mixed or the Public development method the Province retains

control over the execution of the place and can respond creatively to any problems which may emerge.

Q3 The town's siting is controlled by the Province through its ownership of land. The Province can influence the siting by offering to sell land in a specific location. It can do so no matter which development approach is taken.

Q4 The Company maintains control over the allocation of housing in the town through "buy-back" clauses. The clause usually requires the resident to sell back the house to the company should he or she cease to be an employee. The sales price is usually fixed in the contract and is set equal to the employee's mortgage payments less the cost of abnormal depreciation. The employee is usually released from the "buy-back" clause after remaining with the Company for five years or more.

If the employee is to leave before this period of time, and if the market price of the house has increased, then the employee will naturally resent the "buy-back" clause. The Company has usually made it possible for the employee to purchase the house with a minimal, or a nominal, down payment. The clause can be seen as part of the housing contract which appears satisfactory to both parties at the outset. In this contract the employee benefits at the beginning of his term with the Company and pays at the end. We are not in a position to judge the fairness of the "buy-back" clause. The matter is now before the courts in British Columbia.

This problem is independent of the development method and we recommend that the Province does not become involved in the

Company's housing policies. The Company compensates its employees through wages and through housing subsidies. Both subjects should be dealt with by the labour unions.

Q3 Service sector people in resource towns tend to lack choice in housing accommodation. The mobile home park is often the only type of accommodation available. Four interrelated explanations for the lack of choice can be offered.

First, the houses or apartments cost too much. The Mortgage Insurance Corporation of Canada insures houses in resource towns and charges the purchaser for the service. Financing is available but the cost of the house and the insurance is often too great to be afforded by the service sector resident. The person who takes a gamble in setting up a business in an uncertain resource town may not be prepared to increase his or her risk by adopting a large fixed mortgage obligation.

Second, the supply of housing to the service sector people may be restricted by the lack of local building contractors. The cost of having a contractor come in from a neighbouring town may increase the price past the affordable level. Again, the cost is the problem.

Third, the lack of developers who are willing to gamble on rental accommodation restricts the service sector person's choice of accommodation.

Fourth, the Company's 'buy back' clauses prevent the 'filtering' of houses to the service sector population.

The uncertainty of the town's future viability is the main source of the housing problem. Changes in the method of development can increase the investor's perception of the town's stability. Provincial commitment to the town's viability will stimulate the growth of the service sector and increase the chance that private housing developers and contractors will enter the town. The choice of a Mixed or a Public development method eases the way for a solution. This move, however, may not be enough and direct involvement may be needed. The Housing Corporation of British Columbia may absorb the risk associated with service sector housing and build in resource towns. In Grande Cache and in Leaf Rapids, the Province supplied housing to the service sector population.

To summarize: The problem may be solved through a visible Provincial commitment to the town's viability. The problem can be solved through public provision of the houses. The problem may be ignored and the service sector people may remain in mobile homes. The choice is a political one.

Q6 In Alberta, the Province's business community is said to support the New Towns legislation. It gives them access to resource towns. The Company, through its control of land, can not restrict their entry. The growth of a competitive commercial sector is affected by the development method. The Province, by maintaining control of the land can set its prices, may issue any regulations it wishes and negotiate with developers. By becoming visibly involved in the development process, the Province is seen to stand behind the town. The perception of risk is reduced and businesspeople need not fear the town's demise.

Q7 Discrimination can be reduced by the Province controlling the allocation of land and lots in the town. The Mixed or the Public development methods can be used to help resolve this problem.

Q8 The provision of essential services and facilities in the start-up town can be effected only through Company or Provincial subsidies. The compounding of interest payments and the passing of them on to future residents is both unfair and imposes an excess burden on the town.

In theory, the services could be provided through any of the three methods of development. In practice, it will be the Government developer who will have sufficient power and access to coordinate and move the public departments involved in the townsite development.

The Town's Stability, Growth and Diversification:

S1 Fluctuations in the town's employment levels can only partially be affected through the townsite management and financing schemes. By placing the Company on the Municipal tax roll, the Company must bear a part of the burden that any large scale lay-offs would cause. This move would make the Company consider the effect of its actions on the town but it may not be enough to affect the Company's decisions.

Insuring that the town is not subject to lay-offs due to Company production errors can best be effected at the time the mineral rights are sold. The points listed under solution "R2" will help reduce fluctuations in employment levels.

Changing the method of development is likely to do little to increase the town's stability. Provincial exploration programs and incentives for other companies to locate in the area will improve the town's stability and long-run viability.

S2 Keeping trackage rights open to other railway companies in the case of strikes will increase the stability of the town.

S3 Provincial involvement in the development process increases the business-person's perception of the town's long-run viability. Provincial involvement gives the impression that the Government is behind the town and that it will not let it become a ghost town. The choice of a method of development can have a great effect on the business-person's perception of the town's stability.

S4 Restrictions on the entry of small businesses can be removed by the Province's retention of control over the non-residential land reserves in the municipality. The Province can control the granting of monopoly rights to developers. It can, through the sales or lease contracts with business people, encourage their social awareness.

Provincial control of the land will remove the chance that businesses are excluded through restrictive zoning by-laws and through land pricing schemes.

The Mixed or the Public method of development is recommended as the means for removing restrictions to the entry of small businesses.

S5 The service sector is a substantial source of jobs for women in resource towns. The growth in this sector is essential for increasing employment opportunities for women. Restrictions to the entry of businesses (the granting of monopoly rights) reduce the chance that women can find work. These problems have been dealt with in the last two sections. Mixed or Public development, by stimulating the growth of the business sector, will help women find work.

The Mixed or Public development methods, by giving the Province the control over the town's land resources, gives the Province the power to screen or to encourage the entry of labour intense businesses. The prospective entrant's awareness of the community's interests and needs can be prodded by the public developer (as it was in Leaf Rapids). The Mixed or the Public methods give the socially aware townsite developer and administrator the flexibility to deal with as yet unforeseen circumstances that can be exploited to increase job opportunities for women.

FIGURE 29

KEY-WORD SUMMARY OF POTENTIAL PROBLEMS AND POSSIBLE SOLUTIONS

POTENTIAL PROBLEM	POSSIBLE SOLUTION
Risk and Cost Sharing:	
R1 Total Failure	regional umbrella eliminates risk
R2 Failure to grow	company guarantees and mineral leases
R3 Planning errors	co-ordination, price quotes, retained experience
R4 Inflation	inflation clauses in contracts
R5 Risk-shifting	lot cost components in Letters of Patent
R6 Tax avoidance	conditional townsite land sale
R7 Sharing across companies	negotiation and Community Capital Fund
R8 Sharing/resident/company	debt ceilings or Appeals Board
R9 Sharing/new/old residents	subsidy from Company and Province
R10 Sharing/users/non-users	subsidy, limited user charges, taxes
R11 Political costs	low Government profile in development
R12 Allocation/competing towns	general Resource Town Policy
R13 Allocation/region/town	townsite consideration in mineral leases
R14 Subsidy incidence	negotiated subsidy programs
Efficiency of the Development Process:	
E1 Scale economies	water systems grants and more studies
E2 Labour unrest	contracts with labour unions
E3 Adm. inefficiency	liaison persons; Private or Public methods
E4 Delayed grants	interim municipal council, townsite advances
E5 Loss of expertise	Mixed or Public development methods
E6 Planning continuity	Mixed or Public development methods
E7 Resident participation	Community Capital Fund for recreation
The Quality of the Town:	
Q1 Co. Town stigma	Mixed or Public development methods
Q2 Quality of layout	Mixed or Public development methods
Q3 Quality of location	lease or sale of townsite land
Q4 Buy-back contracts	resolution by labour-union not Province
Q5 Service sector housing	subsidy or Government production
Q6 Commercial development	Mixed or Public development methods
Q7 Housing discrimination	Mixed or Public development methods
Q8 Facilities in start-up	subsidy from Company or Province
The Town's Stability, Growth and Diversification:	
S1 Level of employment	conditional mineral leases
S2 Monopoly trackage	open trackage
S3 Perceived stability	Mixed or Public development methods
S4 Restrictions on entry	Mixed or Public development methods
S5 Employment for women	Mixed or Public development methods

2.5 METHOD OF INVOLVEMENT AND POSSIBLE SOLUTIONS:

The Province can become involved in the development of the contemplated North-East town in at least four general ways. It may become involved through:

1. Regulation and Prescription: The Government may seek its goals of improving the character of the town or of meeting other regional development objectives by issuing regulations or prescriptions that the Company must follow when building or managing the town.

2. Production and Management: The Government may undertake the responsibility of building the town or of having the town built in the manner it desires. The Government may enter into the management of the entire development process or it may provide limited assistance in administering the process. It does so by adopting either the Public or the Mixed development method. It does not necessarily pay for the production.

3. Expenditure Programs: The Government may issue grant or subsidies or incentive payments to have desired features built or managed or implemented by private developers. It may subsidize development to insure that costs are fairly shared between the town's residents and the rest of the province.

4. Financial Instruments: The Government may attempt to secure its goals by using a cost-sharing with cost-recovery approach. Under this option, the Government does not end up by paying for the townsite attributes it desires but attempts to secure them by the means of engaging in their financing. It can use financial instruments to produce incentives for company managers to respond to social goals. It can specify the kinds of financial instruments to be used to ensure an equitable distribution of costs.

These methods of involvement are currently used. By means of regulation, the Province determines housing standards, the quality of water supplied and the extent of pollutants emitted. The Letter of Patent is a regulatory document. Conditions accompanying the sale of the townsite land or the lease of mineral rights are regulatory instruments. The government may enter the production or management of infrastructure components. In many cases the Province provides regional infrastructure, railroads and highways, by building them or by having them built. The Province enters into the production of the town when it selects the Mixed or the Public method of development. Per capita grants are offered to new municipalities. Subsidies

are offered to help pay for social services. Federal agencies enter into the financing of housing and physical services. The Municipal Finance Authority becomes involved directly in the financing of the town's infrastructure and facilities.

Many of the potential problems can be overcome by the use of any of these methods. In such cases, the selection of the means of involvement is based on a consideration of their cost effectiveness and of the political philosophy of the policy maker.

Our task is to evaluate the three alternative methods of development and in doing so we concentrate on the involvement through production and management. Since some problems and solutions are either independent of the development method chosen, or their possible emergence in the Private method can easily be checked, we can dismiss them when evaluating the benefits and costs of the alternative development methods. These potential problems can be resolved or pre-empted by the means of regulation, finance or subsidy. Figure 30 identifies them. Some of these problems are resolved by means of regulation, finance or subsidy when used in conjunction with the Mixed or Public development method. These solutions are identified by a lower case "x" in the same figure.

As suggested in the preceding section of this chapter, the risk-shifting, tax avoidance, cost-sharing and the resident participation problems can be resolved within the Private development method by means of regulations included in the Letters of Patent or by conditional sales of land. Delays due to labour unrest may be dealt with by the Company through negotiations with the labour union. The town's location and the stability in the level of employment (not to be confused with turnover rates) can be effected in the negotations over townsite land leases and mineral rights sales.

The cost sharing across resource companies, resident participation and stability of employment levels problems can best be dealt with by regulation and by the specification of financial arrangements. The choice of financial instruments can effect equitable cost sharing between residents and Company, new and old residents, users of services, and facilities and non-users. The problem of delayed grants can be resolved through financial arrangements which offer advances to the new town developer.

The specifics of the possible solutions to the problems listed in the last three paragraphs have been discussed in the preceeding section of this chapter and the problems need no longer be considered in the evaluation of the alternative development methods. Figure 31 lists the remaining problems and solutions that are affected by the choice of the method of development and tells whether the association creates a cost or a benefit. Our opinion as to the relative importance of the costs and benefits is indicated by the use of upper and lower case letters.

FIGURE 30

THE RELATIONSHIP BETWEEN PROBLEMS, METHOD OF INVOLVEMENT AND METHOD OF DEVELOPMENT

		REGULATION	FINANCE	SUBSIDY	PRODUCTION
Cost and Risk Sharing:					
R1	Total failure				X
R2	Failure to grow				X
R3	Planning errors				X
R4	Inflation	X			
R5	Risk-shifting	X			
R6	Tax avoidance	X	X		
R7	Sharing/companies		X		
R8	Sharing/resident/company		X	X	
R9	Sharing/new/old residents		X		
R10	Sharing/users/non-users				X
R11	Political costs				X
R12	Allocation/competing towns			o	X
R13	Allocation region/town	X			
R14	Subsidy Incidence				
The Efficiency of the Development Process:					
E1	Scale economies		o	o	X
E2	Labour unrest	X			
E3	Adm. inefficiency				X
E4	Delayed grants		X		
E5	Loss of expertise				X
E6	Planning continuity				X
E7	Resident participation	X	X		
The Quality of the Town:					
Q1	Co. Town stigma				X
Q2	Quality of layout				X
Q3	Quality of location	X			
Q4	Buy-back contracts	X			
Q5	Service sector housing			o	X
Q6	Commercial development				X
Q7	Housing discrimination				X
Q8	Facilities in start-up			o	X
The Town's Stability, Growth and Diversification:					
S1	Level of employment	X	X		
S2	Monopoly trackage	X			
S3	Perceived stability				X
S4	Restrictions on entry				X
S5	Employment for women				X

Note: X indicates resolution within the Private method of development.
o indicates resolution is best by the methods of regulation, finance or subsidy when they are used in conjunction with the Mixed or Public method of development.

FIGURE 31

THE RELATIONSHIP BETWEEN PROBLEMS AND METHOD OF DEVELOPMENT

(Problems not related with the method of development and problems easily resolved have been deleted.)

		PRIVATE	MIXED	PUBLIC
Cost and Risk Sharing:				
R2	Failure to grow	B	c	C
R3	Planning errors	B	c	C
R4	Inflation	b	c	C
R11	Political costs	b	c	c
R12	Allocation/ competing towns	B	c	C
R13	Allocation/region/town	c	b	B
The Efficiency of the Development Process:				
E1	Scale economies	c	b	b
E3	Adm. inefficiency	b	C	B
E5	Loss of experts	c	b	b
E6	Planning continuity	c	b	b
The Quality of the Town:				
Q1	Co. Town stigma	C	B	B
Q2	Quality of layout	c	b	b
Q6	Commercial development	C	b	B
Q7	Housing discrimination	c	b	b
Q8	Facilities in start-up	c	b	B
The Town's Stability, Growth and Diversification:				
S3	Perceived stability	C	B	B
S4	Restrictions on entry	C	B	B
S5	Employment for women	C	b	B

Note: C or B indicates major, in our opinion, costs or benefits that are associated with each method of development.

c or b indicates the lesser costs or benefits.

2.6 SUMMARY:

The main costs associated with the Mixed or Public methods of development are with the 'cost and risk sharing' problems. The Province, by becoming directly involved in the production or management of the town, absorbs greater risks and potential costs than it does otherwise. The costs in the Public method of development are likely to be greater than with the Mixed simply because this method involves the Province in major townsite investments.

When considering the efficiency, town quality and the stability problems, the Mixed and the Public methods generate benefits whereas the Private method imposes costs. The exception is in the efficiency of administering the process.

To summarize: the main benefits of extending the Province's involvement through production or management lie in their qualitative effects and their effects on the efficiency of the process. The costs are mostly monetary ones that are associated with risk. A summary of costs and benefits is presented in the next two figures. Figure 32 lists the relative benefits of selecting the Private development method over the Mixed or the Public methods. The benefits listed here are those which distinguish between the private and either of the other two methods. Figure 33 lists the relative benefits of the Mixed and the Public method of development. The benefits listed here are those which distinguish between the two methods of development.

FIGURE 32

THE RELATIVE BENEFITS OF THE PRIVATE AND THE MIXED OR PUBLIC METHODS OF DEVELOPMENT

BENEFITS OF THE PRIVATE METHOD NOT GAINED BY THE MIXED OR PUBLIC METHODS:

1. The Province absorbs a smaller risk due to the town's failure to grow as planned.
2. The Province does not absorb the cost of any major and apparent planning, management and pricing errors.
3. The Province will not be faced with the problem of having other resource towns ask for additional assistance on the grounds of 'horizontal equity'.
4. The Province will incur fewer administrative costs.
5. The Province, by taking a 'low profile', will receive less blame for any of the town's shortcomings than it would were the Mixed or the Public methods of development used.

BENEFITS OF THE MIXED OR PUBLIC METHOD NOT GAINED BY THE PRIVATE METHOD:

1. Provincial involvement will increase the businessmen's perception of the town's long term viability. This in turn will stimulate the growth of the town's service sector.
2. Provincial control over land-use will help assure that business-people are not excluded from entry to the town's economy. This also will stimulate the growth of the town's service sector.
3. The growth of the service sector yields the following benefits:
    a. employment opportunities for women are increased
    b. competition in the commercial sector is increased
    c. the residents have more choice in retail outlets
4. Provincial development eliminates the 'Company Town' stigma.
5. Provincial involvement in the actual development process gives the government direct control over any subsidies it may wish to offer the town for the purposes of:
    a. providing a high level of start-up facilities
    b. providing service sector housing
    c. attempting to reap 'economies due to scale'
    d. effecting a high quality townsite plan
6. Expertise in developing resource towns is retained for use in the developing of other towns by the Mixed and Public development methods.
7. The continuity of planning the town through its various stages of growth is assured.

FIGURE 33

THE RELATIVE BENEFITS OF THE MIXED AND THE PUBLIC METHODS OF DEVELOPMENT

BENEFITS OF THE MIXED METHOD NOT GAINED BY THE PUBLIC METHOD:

1. By not investing heavily in the town, the Province absorbs fewer costs associated with risks due to:

   a. the town's 'failure to grow' as planned
   b. planning and management errors
   c. pricing errors due to inflation

2. By not investing heavily, the horizontal equity problem concerning the allocation of funds across competing resource towns is diminished.

3. The Mixed method does not involve the Province as a large investor and therefore does not create the need for large Provincial outlays or large borrowings by a Crown Corporation.

BENEFITS OF THE PUBLIC METHOD NOT GAINED BY THE MIXED METHOD:

1. The Commercial development is increased by this method since the Province may become an investor in the facilities.

2. The Province having invested extensively can better effect programs or developments which create additional employment opportunities for women.

3. By investing, the Province assures the town of a high level of services and facilities from the beginning.

4. The extra investment will make the investment allocation between regional and townsite infrastructure appear to be better balanced.

5. Since the Province invests heavily in this approach, it does not need to carry on an open dialogue with the Company after the Townsite Agreement has been signed. As a result the administration efficiency of this method is improved.

CHAPTER 3

POLICY CONSIDERATIONS

3.1 INTRODUCTION:

The Province may wish to become involved in the development process in order to make the town financially viable, improve the efficiency of the development process, and improve the quality of the town. This involvement may be in the form of issuing regulations, which the Company must abide by when developing the town, by producing the townsite, by helping finance it and by offering subsidies. In all cases the Province would become involved in regulating the townsite development process. It may do so through the Letters of Patent or by having a representative on the Town's Interim Municipal Council or by giving the responsibilites of all phases of the town's development to a Crown Corporation.

The main decision the Province must make is to determine the extent to which it will become involved as a producer, and the extent to which it will offer subsidies. The Province must decide on who builds the town and who pays for it. These may be addressed separately. Involvement through production is not predicated on provincial subsidies. The issues of who builds and who pays will be discussed in the next two sections.

3.2 WHO BUILDS?

This question requires the choice of a method of development. The Private, the Mixed and the Public methods have been described in Chapter Two of this report. The decision will be made by considering the relative advantages of each method and the decision-maker's goals, priorities and

political philosophy.

The relative advantages of the three methods were revealed at the end of the last chapter. The essential trade-offs are between the qualitative and the risk-sharing attributes of the town and its development process. The more control the Province retains, the higher the quality of the town. The more control acquired by the Province in choosing the Mixed or the Public methods of development, the greater the costs associated with the Province's share of the risk. It is interesting to note that the Province's involvement via the Mixed method is likely to generate an increase in the town's service sector business activity.

Since the reader is already familiar with the relative advantages of each method of development, the discussion will be confined to two points:

1. The policy-maker will have to make a clear decision on the method of development before negotiations with the Company start. This decision, this choice of a development method, is a discreet choice: the Province either establishes its control over the town's land or it does not; the Province either becomes involved as an investor or it does not. This decision will determine the Province's stance in the negotiations.

   The decision is not only useful in determining the Province's stance when negotiating, but also the process which yields the decision is one which clarifies and makes transparent the policy-makers' goals.

2. Should the Province adopt the Mixed method of development, it must do so with an explicit decision. If policy makers wish to avoid an explicit decision and hope simply to find themselves applying the Mixed method, then this development approach is likely to be a highly inefficient one.

   The efficiency of the Mixed method rests on the Province's ability to secure through negotiations a written contract with the Company that clearly spells out each party's areas of responsibility. Without such a contract the Province runs the risk of initiating a process in which joint decision-making is required throughout. The need for joint decisions throughout the development process will, in our opinion, create more problems than the Mixed method solves.

Should the policy-makers wish to adopt the mixed method, then the decision to adopt it is needed before negotintions start because:

1. This decision would be followed up by an outline of the policy-makers' development strategy for the town. At the start of negotiations, the Province offers the development strategy which is predicated on the choice of the Mixed method.

2. The Province's negotiators will not want to yield concessions for having picked the Mixed method of development. The Province's decision on the development method should not be negotiable.

3.3 WHO PAYS?

The financial analysis presented in Chapter 1 revealed that the town will have an annual deficit of $1.88 million/year if the CRF and sewer programs are not applied, if the program outlined in Schedule A is used, and if the rest of the costs are recovered through lot sales and a property tax equal to the median level charged in 18 comparable communities. If Schedule B, the schedule calling for the earlier construction of the school, hospital and recreation facilities, is used, then the annual deficit would be increased by $.113 million year. The task now is to determine who ought to pay to eliminate the deficit. In determining who pays for the townsite, we refer to equity principles suggesting:

. That equally circumstanced people or firms be treated equally.

. The burden of paying for the services be distributed according to the benefits people and firms receive from them.

The circumstances surrounding contemplated resource towns differs from those of existing towns and urban areas in at least the following ways:

1. The resource town's viability is dependent on the viability of the resource company's venture. In the planning stage we consider the possibility that a failure of the venture will cause the town to fail.* The chance that the investments in a town

*In the event the Company fails, the Province may take drastic measures to make sure that the town and the regional infrastructure are not abandoned. The planning and negotiations should not be predicated on such contingency plans.

will cease yielding benefits to society is real. If the Company's venture ceases to be profitable, the company leaves, the town closes, and buildings and services are abandoned.

In urban areas this risk is greatly reduced by the presence of many companies. Even if all of these started to flounder (as in the case of a great depression) the investments would be used because people cannot leave. In urban areas there is no risk that public investments will be abandoned.

The combination of the higher risk of failure and the potential mobility of the residents makes public investments in resource towns uncertain ones. The fact that the resource is non-renewable puts a limit on the town's life and reduces the chance that investments in community facilities will have an indefinite life span.

2. Resource towns are built, urban areas exist. This obvious difference allows one to ask, in the case of a resource town, whether or not the town should be built . It requires the planner to consider the benefits and the costs of having a town in the first place.

   Since the prime beneficiary is the Company and its shareholders, and because information on the cost of production and the real profitability of the private venture is hard, if not impossible, to come by, one test of the desirability of the town is the Company's ability to pay for it and its essential services.

3. The prime beneficiary of the townsite is the Company and its employees. They are identifiable in a resource town as they are not clearly identifiable in urban areas. As a result, the need for a public agency to carry out the production of townsite components is not as great in resource towns as it is in cities.

   The inability to exclude people who do not pay for the enjoyment of public services is not the same in resource towns as it is in urban areas. The 'public goods' argument for government provision of services is not applicable to resource towns.

4. The economic life of a resource town is focussed on the Company. The employees, in offering their labour for set wages, take into consideration the life-style such a contract offers. The Company compensates its workers by means of wages, housing subsidies and contributions to their community facilities. Should the Province subsidize the town by offering the residents a cut in taxes (to increase their take-home pay), or to subsidize their houses, or to pay for the town, then the Company is the prime beneficiary by having the rest of the inhabitants of the Province pay for it to be able to engage in a profitable venture.

   Since the economy of a resource town is a closed system in which the links are apparent, the subsidy of one component is essentially a subsidy of the whole.

5. The resource town's geographical remoteness usually calls for large regional infrastructure investments. The scale of the investments often make it impossible for the Company to finance them. The Province or the Federal Government, by building the regional infrastructure and absorbing the risk that is associated with this investment, may contribute considerably towards the cost of the venture.

   Resource companies planning new ventures often receive substantial government assistance in the form of regional infrastructure development. Such support is usually not offered to firms starting up in existing urban areas. Without considering any provincial contributions towards the townsite, it is likely that the public funds committed to making the resource companies feasible are at least comparable to the Province's contributions to the provision of urban services in other areas.

These characteristics lead to the following conclusions:

1. The 'horizontal equity' argument calls for equally circumstanced people or firms to be treated equally by public expenditure and tax policies. Only "relevant circumstances" must be considered. All five distinctions listed above show that the circumstances surrounding new resource communities are different from those surrounding other towns and urban areas. The risk distinction suggests a more cautious approach be applied to new resource towns; any assistance offered should take the unique circumstances of each town into consideration.

2. The fact that the resource town does not yet exist suggests that a careful benefit-cost assessment of its desirability be carried out. The Province, by offering its urban development programs to the new town, may make a town financially viable when in fact its economic benefits do not outweigh the costs. This possibility calls for an individual assessment of the grants that are to be offered to each new town. Offering assistance automatically may lead to an inefficient allocation of the Province's resources.

3. The apparentness of the town's economic structure and the identifiability of the beneficiaries of public services remove the need for provincial financial involvement on the grounds that the basic services would not otherwise be provided. Negotiations between the company and its employees may best determine the means by which workers are compensated.

4. The apparentness of the economic structure along with the interrelation between its components cause the incidence of subsidy to be shifted easily at the outset. If a water system is needed, and if the Company finds the venture feasible, then it will pay for it and recover the costs in the manner it believes to be most profitable. If the Province assists the start-up town by extending subsidies, then the Company simply pays less and gains greater profits. The incidence of the subsidy is shifted and the Company's shareholders gain the dollars.

5. The horizontal equity argument, suggesting that the resource company receive assistance in developing the townsite because other companies located in urban areas receive such assistance indirectly, does not apply. The Company is likely to be receiving its fair share of the tax dollars by having the Government finance or absorb the risk associated with the regional infrastructure investment.

   When determining equitable sharing of townsite costs, the regional infrastructure investment should be considered. In the final analysis it may turn out that the Company is being unduly privileged. In return for the Province's implicit subsidies on the regional components, the Company ought to take on a greater investment and absorb more risks by developing an exemplary townsite.

The unique characteristics of new resource towns call for individual treatment by the Province, including the suspension of normal grant programs, a cautious investment approach by the Province, and an assessment of the total costs and risks that the Province absorbs in financing any townsite and regional infrastructure.

Before proceeding, we assume that the Province's contribution to the regional infrastructure is based on the policy-maker's perception of the social value of the regional development. Any additional assistance offered to the townsite development is assumed to not increase the regional development benefits that accrue to the rest of the province. Furthermore, by virtue of the Province's or Federal Government's assistance in financing the regional component, the Company can not make a claim for additional townsite contributions on the grounds of horizontal equity: the resource Company is assumed to gain a fair share of the Governments' expenditure programs even if it does not receive any assistance for townsite development.

We can now discuss the townsite costs that the Province ought to bear. The following list gives the argument and the conclusion:

1. The Province ought to pay for those components that yield benefits to the rest of the province. The recreation facilities and day-care services offered in the resource town yield benefits to the rest of the province by helping to socialize the children who will eventually be living elsewhere. For this reason we recommend that the CRF fund apply to new resource towns.

2. While the employees and the Company may be able to find a satisfactory formula by which labour is compensated, the Province may adopt a 'parental attitude' and say that the community attributes that this formula yields are not good enough. If the Province wishes the residents of the resource town to have more public goods than they or their Company wish to pay for, then the Province should be prepared to bear the burden of providing them.

   The Province may do this by offering grants to the established town. These grants, if offered automatically at the outset, will not necessarily improve the quality of the town. They will, however, reduce the Company's cost of extracting the resource. Grants and assistance programs should not automatically apply; they should be offered in return for Company contributions towards the 'quality of life' goals set by the provincial policy makers.

   The Province may wish the start-up town to have the basic health and education facilities; it may want to apply Schedule B rather than Schedule A. If the Province insists on this policy then it should be prepared to bear the risk associated with it and absorb the cost of deferring the debt retirement.

3. The Province may engage in the financing of the town in order to help secure an equitable distribution of start-up costs across the first resource company and any other company that arrives at a later date. It can do so by offering the town assistance in selling debentures. The MFA guarantees allow the town to be debt financed and assure that the entry of other companies reduces the per capita debt payments due to the start-up investments. The MFA guarantees constitute a substantial provincial commitment to resoure towns.

4. The town may be viable economically but the Company may not be able to pay at the start the amount required to eliminate the deficit. The Company's contribution to the front-end investment may adversely affect its cash-flow position and impare its ability to implement its production plans.

In conclusion, the Company ought to bear the cost of building the basic (Schedule A) self-financing town. If the Province wants more, if it wants Schedule B, it should be prepared to bear some of the risk that is associated with it. The applicability of the CRF fund is recommended on the basis of the 'benefits received' principal. The Province may assist the town by helping to finance its development.

Depending on the choice of the cost-recovery instrument this form of financial involvement can cause the Province to bear most or practically none of the risks. A fixed lump sum charge placed on the Parent Company will shift most of the risk onto the Company. A charge on the extracted resource shifts most of the risk onto the Province. The formula for risk sharing ought to be determined by policy and through negotiations with the Company.

If no special assistance in the way of CRF grants and sewer assistance programs were applied, the Province may offer an $8.0 million grant to the Company in the first year to eliminate the deficit. It would then recover the costs (assuming a 10% interest rate) over twenty years by having the Company make an annual payment of $0.94 million dollars. The use of Schedule B would call for a start-up grant of $8.5 million and a recovery charge of $1.00 million a year.

Though Schedule B does not increase the direct costs by a large amount, the costs associated with the risk that the town does not grow as planned are real. Schedule B calls for education and recreation facilities costing some $4 million to be built by the end of year three. If the town ceases to grow after it reaches the year three population, then the investments would not have been needed and it could be considered lost. If the chance that the town does not grow after year three is 10%, then the cost associated with the risk is $4 million x .10 (= $.400 million.) This is almost equal in size to the difference in the direct costs of Schedules A and B. The Province, by financing Schedule B and by absorbing the risk, would be offering an indirect subsidy to the town. The choice of the cost-recovery instrument determines the share of the risk that the Province absorbs and, therefore, the size of the indirect subsidy.

Alternative cost-recovery instruments for use with the 'Province pays and recovers from the Company' approach, are presented and evaluated in the Appendix.

3.4 THE 'PAY AND RECOVER' APPROACH:

The Province may wish to pay for some townsite components and recover the costs from the Company by levying a special charge. This form of assistance can be used to eliminate the deficit. The advantages of Provincial involvement through the use of this financing technique are as follows:

1. By adopting the 'pay and recover' arrangement, the Province can make explicit the fact that it shares the risk that is associated with the Company's venture. If it does not assist the Company directly with such a special arrangement, then the Province is likely to do so indirectly through the MFA. In this case the Company and the residents have to absorb the deficit through their taxes. Should the Company's venture fail, then the MFA and the Province become liable for the full cost of the outstanding debentures. Under the 'Province pays with full recovery from the Parent Company' approach, the Province can adjust its share of the risk by selecting an appropriate cost-recovery instrument from a whole array (see the Appendix). The 'pay with full recovery' method is capable of "finer tuning" of the Province's share of the risk than is the MFA municipal debenture guarantee program.
2. By allowing the town to borrow through the MFA and eliminate the deficit through property taxes, the Province puts itself in the unpopular position of forcing the municipality to raise its taxes across residents and businesses should any problems in retiring the de-

bentures emerge. By going outside the MFA and agreeing with the Company on a 'pay and recover' approach, the Province will have to deal only with the Company should problems emerge. The residents and service sector business people are spared. Their share of the risk is lowered.

3. The 'pay and recover' approach, by offering the Province an array of cost-recovery instruments to chose from, allows the payments to vary over time to reflect changes in economic conditions. The 'pay and recover' approach is more flexible than is the MFA route. In chosing an instrument yielding a variable revenue (e.g. charge placed on the extracted resource), the Province absorbs some of the risk that is associated with the venture. This indirect subsidy on the risk may be justified on the grounds that the risk-averse private investors would insist on too high a discount rate, one that may make the townsite investment appear not to be financially feasible. The Province, being in a better position than is the Company to pool risks and being in position to adopt contingency plans which will make the townsite viable even if the first Company's venture fails, may desire to have the lower discount rate used when determining the ventures feasibility.
4. By engaging in the 'pay and recover' approach the Province eases the Company's cash flow position. This may make the venture financially feasible, if it would not be feasible otherwise, or it may help the Province obtain through negotiations a greater Company contribution. By means of the 'pay and recover' approach, the Province may be able to have Schedule B implemented with

the Company paying its full costs. The Province may be able to secure Schedule B by offering the Company assistance in financing the new town.

The choice of the 'pay and recover' method to eliminate the deficit gives the Province a strong position when negotiating for Company contributions, makes it easier for the Company to contribute, allows the Province to 'fine tune' the degree of risk it wishes to absorb, and removes from the residents and service sector people some of the risk that is associated with the venture.

APPENDIX

COST RECOVERY INSTRUMENTS

.1 The Criteria for Evaluating Cost-Recovery Instruments

Cost-recovery instruments can be evaluated according to their economic impact, the likelihood that they will recover costs, the efficiency of their administration and their incidence.

The economic impact of a cost-recovery instrument is its effect on the Company managers' choice of scale of investments, perception and willingness to take risks, choice of technologies and decisions to lay off employees should unfavourable circumstances develop. The analysis of the economic impact of a tax sometimes includes consideration of the costs associated with tax shifting behaviour but this aspect is considered not consideration here.

The efficacy criteria describe the expected degree of success that the cost-recovery instrument will have in recovering the costs. Clearly if the Coal Companys venture fails entirely, it is unlikely that the Province will be able to recover fully the front-end costs it has absorbed. Nevertheless, one of the variables to be considered when assessing the efficacy of a charge is the degree to which the Government allows its revenues to vary automically to reflect changes in the Company's economic environment. Another variable to be examined looks at the circumstances that may make the Company's approach to the Government for a reduction in the tax burden. Should unforseen, undesirable circumstances develop, the Company may request the Government to reduce the charges placed on them. Alternative cost-recovery instruments may effect differently both timing of the Company's approach to the Government and the Government's negotiating position. An instrument that leaves the

Government in good bargaining position and one which causes the Company to "raise the flag" early, may be one which helps reduce the risk the Government assumes in becoming involved in the community infrastructure investment. Should the situation deteriorate badly the Government may not be able to cover its investment but may be able to exact "socially desirable" concessions from the troubled Company in return for a reduction in the size of the cost recovery charges.

The administrative efficiency criteria relates to the cost of collection and the cost of compliance. Some charges can be "piggy-backed" on others and collected without incurring heavy collection costs. Other charges require a great deal of Government involvement in the affairs of the Company and therefore are costly to administer. Charges which can yield varying revenues may be more efficient to administer than those yielding fixed returns. Variable burdens help the Company adjust to small changes in its economic environment without having to involve the Government. Another administrative criteria deals with the ease with which the cost-recovery burden can be shared by new companies that enter the area. The ease of splitting the burden across different coal companies and across companies from different industries should be assessed.

The incidence criteria brings in all the concerns regarding the equity of the distribution of the tax burden. It is assumed here that an equitable cost-recovery charge is one which sticks with the Company and that its burden cannot be shifted to the residents. This assumption is based on the discussion presented in the section dealing with the company town's economy. The start-up town and the

Company are seen as an integrated economic entity. The Company's payment for community infrastructure are seen as expenditures essential for the maintenance of its labour inputs. We assume that the Government has become involved in providing some infrastructure component that would otherwise have been built by the Company and now seeks to recover the costs from the Company by means of some cost-recovery instrument. Community facilities which would be provided by the Municipality after it has formed are assumed to be financed out of the property taxes that the city council levies.

.2 Charges Placed on the Company

These charges are placed on the company itself and are not dependent on input mix the company uses or the amount of coal that it extracts. Lump sum taxes, license fees and profit taxes are placed on the company and tend not to affect its investment and production decisions.

A lump sum tax, or a license fee adds to the Company's fixed cost of doing business. Such charges shift upward the long and short run total cost curves without affecting their shape. Their impact can be viewed as though the tax places a constant-size wedge between total costs and total revenue. The size of the wedge is constant and it does not change with the technology used, the scale of investment,or the quantity of coal that is extracted. Figures 34 and 35 illustrate the effects of such charges. A vertical upward shift of the cost curves is equivalent to a downward shift in the total revenue curve. The long run and short run profit maximizing position of the firm remains unchanged and this tax has no negative economic impact. Since they are not associated with factor mix and do not change with the amount of coal that is extracted, the taxes do not favour a labour or a capital intensive technology and they do not induce the Company to cut back production. Since lump sum taxes have no effect at the margin, they do not affect the Company's perceptions of the risks associated with the opening of new mine sites. Should unforseen adverse circumstances develop and cause the Company to reduce output, the tax burden remains unchanged. Under changing circumstances the benefits and costs of a fixed charge rest with the shareholders.

The lump sum charge reduces the range of feasible investment options. Having assumed a fixed obligation the company cannot afford to build inefficient plants. Figure 35 shows the effect of the tax after a price decrease has occurred. The minimum profitable level of production is increased. The cut-back due to the price change is not aggravated by the tax. The tax does not induce the Company to increase lay offs. Should a larger drop in prices occur than the one illustrated in figure 35, then the Company can no longer recover its entire fixed costs. It will maintain operations until the situation worsens to the extent that it can no longer recover its variable costs. At such a point in time, the Company is likely to approach the Government for a reduction in its fixed charges. A fixed charge is felt as soon as problems develop and the Company is likely to inform the Government immediately. Since the Company is under an obligation to pay the fixed charge, the Government is in a good negotiating position when the Company requests a lowering of the amount it must pay. The Government may be able to exact social considerations for a reduction in the tax burden.

The bottom part of the diagram shows a labour demand curve by the Company. Since the lump sum tax does not affect input mixes, it leaves unaffected the demand curve for labour. Since the Company cannot reduce the tax burden should prices drop (or should costs rise), the burden is not passed on to the employees in the form of increased layoffs. The tax sticks with the Company's shareholders and this fact may make it a less attractive tax than are others from the Company's viewpoint. The other unattractive aspect of the lump sum is the extra administrative cost involved in affecting a fair split of the cost-recovery burden among the several firms that may eventually make use of the infrastructure.

Figure 34

THE EFFECT OF A LUMP SUM CHARGE

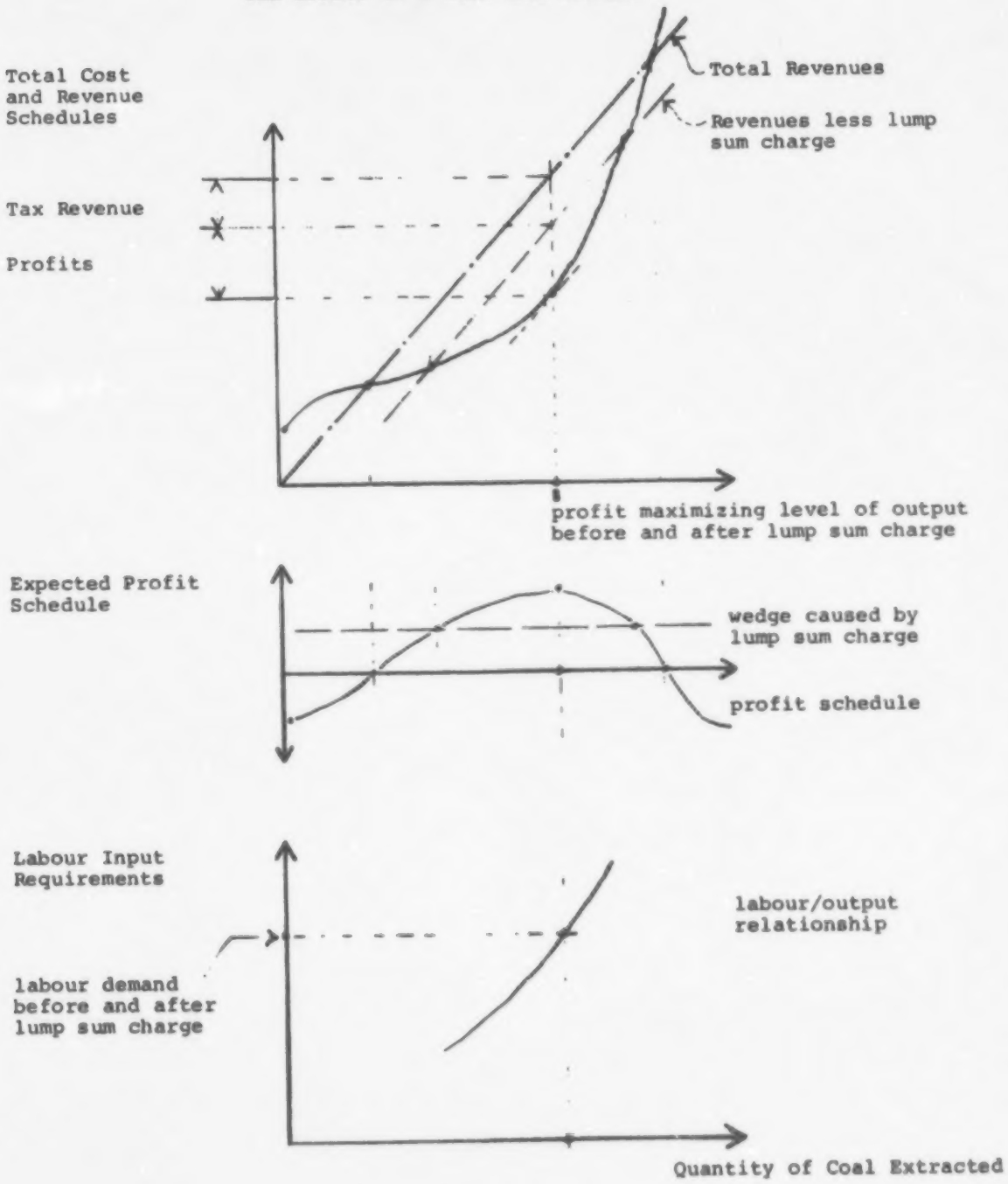
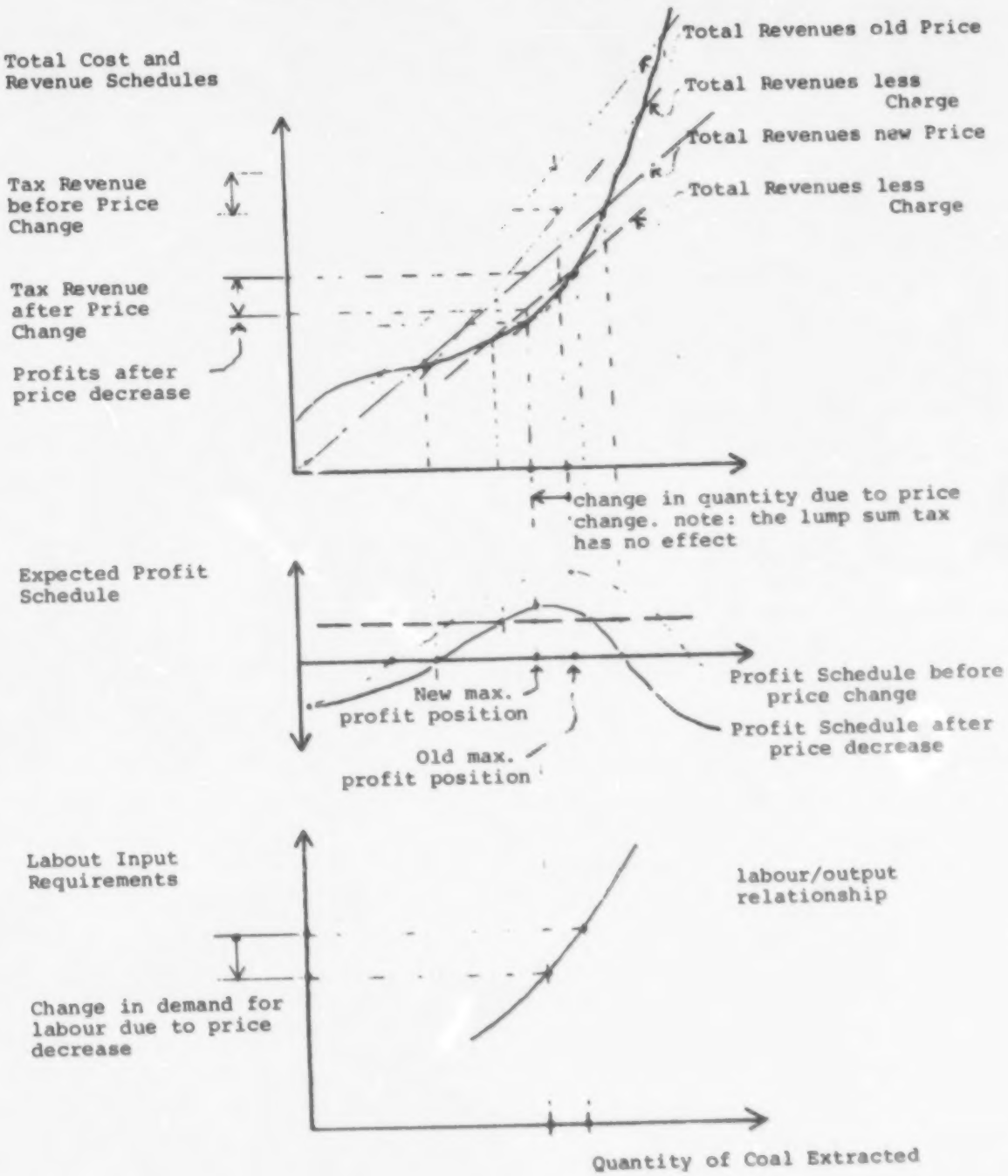

Total Cost and Revenue Schedules
Total Revenues
Revenues less lump sum charge
Tax Revenue
Profits
profit maximizing level of output before and after lump sum charge
Expected Profit Schedule
wedge caused by lump sum charge
profit schedule
Labour Input Requirements
labour/output relationship
labour demand before and after lump sum charge
Quantity of Coal Extracted

Figure 35

LUMP SUM CHARGE: THE EFFECT OF A PRICE DECREASE


Total Cost and Revenue Schedules
Total Revenues old Price
Total Revenues less Charge
Total Revenues new Price
Total Revenues less Charge
Tax Revenue before Price Change
Tax Revenue after Price Change
Profits after price decrease
change in quantity due to price change. note: the lump sum tax has no effect
Expected Profit Schedule
Profit Schedule before price change
New max. profit position
Profit Schedule after price decrease
Old max. profit position
Labout Input Requirements
labour/output relationship
Change in demand for labour due to price decrease
Quantity of Coal Extracted

The profits tax is another charge on the Company that does not directly affect its initial investment and production decisions. Unlike the lump sum tax, this tax does not restrict the Company's feasible range of operations. Should the Company managers make a mistake and build an inefficient plant yielding practically no profit, then the Government simply loses its chance of recovering the infrastructure costs. Should problems occur due to price decreases, management errors, plant failures or cost rises, then the Government automatically loses revenues and it is in no position to negotiate with the Company. The profits tax does not leave the Government in a position to exact from the managers social concessions should unforseen, undesirable circumstances develop. The profits tax makes the Government absorb the risk of the infrastructure investment, without leaving it in a position to exact cost considerations should problems develop.

The profits tax may affect the Company's willingness to take chances since the expected returns for entering into risky ventures are reduced. The tax will tend to make the managers shy away from exploring uncertain mine sites. This tax, while it is collected, rests entirely on the shareholders and cannot be shifted to the employees. While the lump sum tax is one of the least costly to collect, the profits tax is costly. Instituting the profits tax would probably require some agreement which gives the Government access to the Company's books, a concession the Company is unlikely to make.

To summarize, the lump sum charge appears to be a highly attractive instrument from the Government's viewpoint. While the Company is not in serious trouble, the Government recovers costs without affecting adversely the Company's incentives to expand and to take changes. The cost of administering the charge is low and the burden of the payment rests with the shareholders should the future financial circumstances of the firm worsens. This tax assures the Government will be warned early should problems arise. It leaves the Government in the best negotiating position of all the taxes considered in this section,should the Company develop problems. No automatic reduction in the total revenue can occur and the Government can insist that the Company offers specified considerations in return for a tax concession. The main draw back of this cost-recovery instrument is the difficulty of maintaining the desirable properties of the fixed charge when attempting to split it across several companies.

Unlike the lump sum tax, the profit tax leaves the Government totally susceptible to the risk of the venture without a financial basis to involve itself in Company - community relations should problems emerge. Furthermore, it is unlikely that the Company would accept the institutions required to administer the tax.

We conclude that of the two charges placed on the Company, the lump sum charge is by far the most desirable. We note also that the lump sum tax appears very attractive according to almost all of the criteria for evaluating cost-recovery instruments.

.3 Charges on Output

The Government may seek to recover the costs it incurs in providing community infrastructure by placing a charge on the output. Candidate tax bases are: the coal that is extracted, the coal that is exported, or the revenues that are generated by the sale of the exported coal. Only the unit charge on the exported coal is considered in detail. The effect of adding penalty and bonus charges will be explored as well.

Figure 36 shows the effect of a unit charge on the investment decision. It places a wedge between total costs and total revenues that increases with the scale of ventures and the amount of coal that is produced. The charge is perceived by the Company in the same way as would a decrease in coal prices. The effect of the charge can be analyzed by considering a clockwise rotation of the total revenues scheduled. The profit maximizing scale of plant is reduced by the imposition of this charge. Since the Coal Company is likely to have negotiated a long term agreement on prices and quantities before it starts detailed planning of the venture, the effect of the unit coal tax is to decrease the incentives for expansion beyond the contracted amount.

The tax distorts the company's profit schedule by making over-investment more risky than under-investment. It reduces the maximum boundary of the feasible production range by a greater amount than does the lump sum tax. Correspondingly it has the effect of reducing the minimum size for profitable operation to a lower level than does the lump sum tax. This distortion leads the company to favour lower

scales of production. The tax reduces the Company's propensity to expand its marginal or risky mine site operations. Though not nearly as bad as the profits tax, this change reduces the Company's desire to accept risky expansions.

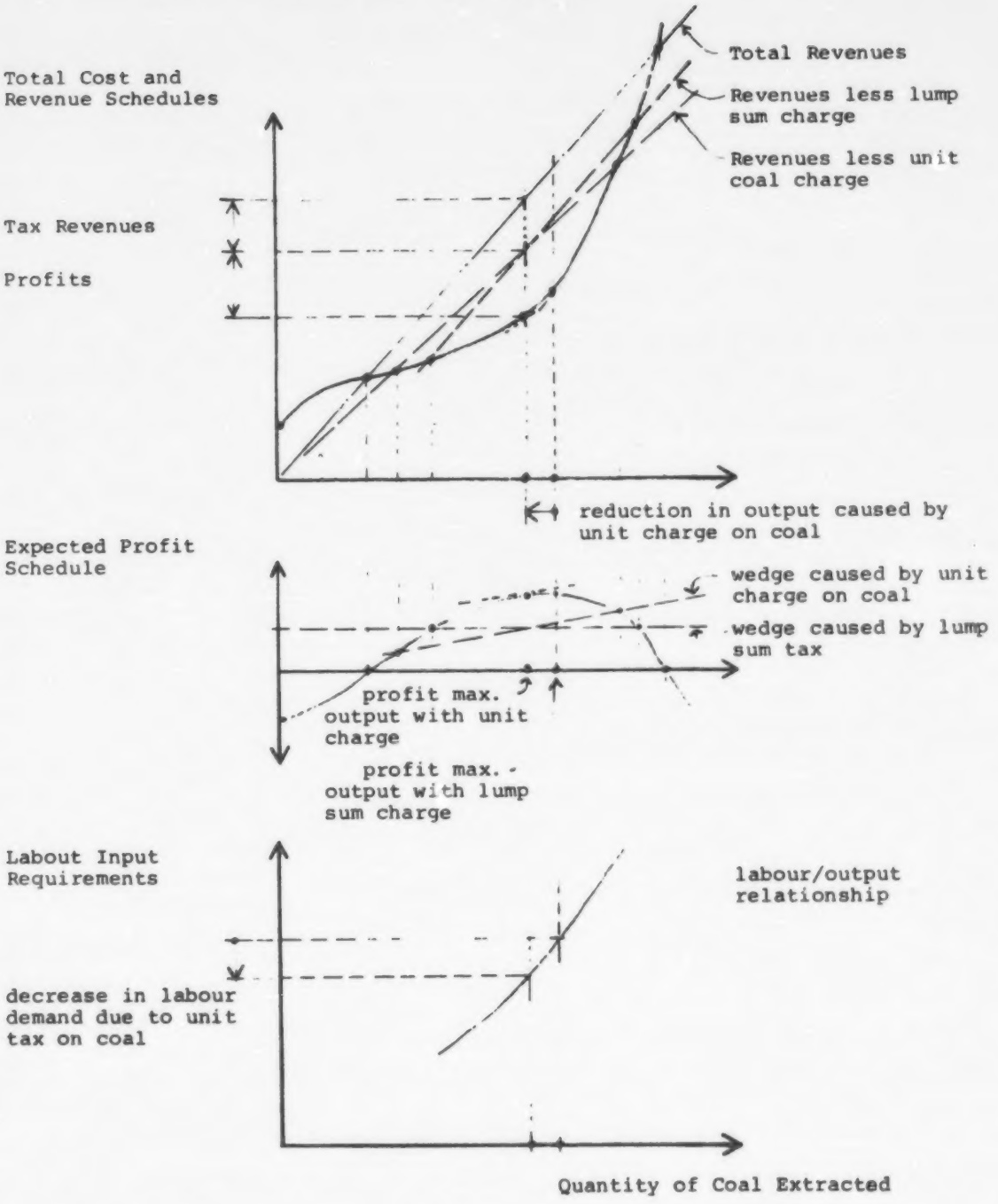
Figure 37 illustrates the effect of the tax should prices drop or variable costs increase. In both cases, the Company attempts to cut back production. The Government therefore absorbs some of the risk due to potential adverse future conditions. Since the tax revenue drops, the company can hold out longer before coming to the Government for assistance. Should a problem situation develop,the company is inclined to raise the red flag later than it would should the lump sum tax instrument have been used. Furthermore, should problems emerge, the revenues from this charge will have decreased automatically, and,by the time the Company comes for assistance , the Government has fewer concessions to offer in return for the Company's consideration of social consequences.

The lower graph in Figure 37 shows the added effect due to the tax on the company's propensity to lay off labour should problems occur. The tax burden is in part shifted to the employees.

Penalty and reward clauses attached to the unit charge reduce the Company's desire to cut back production in the event of price drops or cost increases. The general effect of the penalty and reward clauses is to make the unit tax on coal have impacts which are similar to the lump sum tax. The tax does, however, affect the marginal costs and therefore may deter the managers from expanding into mine sites with low profit margins. The extent to which the

Figure 36

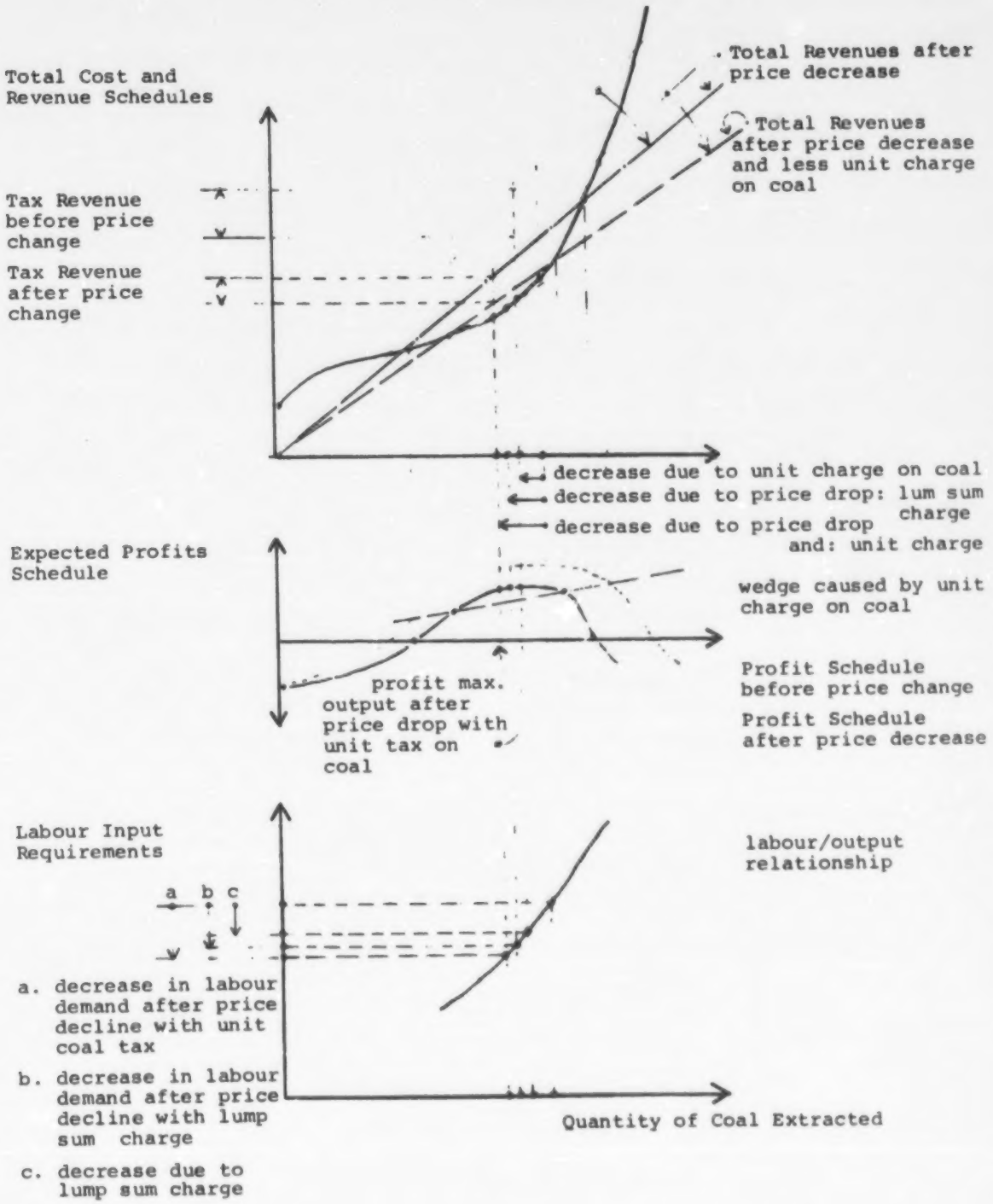
THE EFFECT OF A UNIT CHARGE ON COAL


Total Cost and Revenue Schedules
Total Revenues
Revenues less lump sum charge
Revenues less unit coal charge
Tax Revenues
Profits
reduction in output caused by unit charge on coal
Expected Profit Schedule
wedge caused by unit charge on coal
wedge caused by lump sum tax
profit max. output with unit charge
profit max. output with lump sum charge
Labout Input Requirements
labour/output relationship
decrease in labour demand due to unit tax on coal
Quantity of Coal Extracted

F3

Figure 37

UNIT CHARGE ON COAL: THE EFFECT OF A PRICE DECREASE


Total Cost and Revenue Schedules
Total Revenues after price decrease
Total Revenues after price decrease and less unit charge on coal
Tax Revenue before price change
Tax Revenue after price change
decrease due to unit charge on coal
decrease due to price drop: lum sum charge
decrease due to price drop and: unit charge
Expected Profits Schedule
wedge caused by unit charge on coal
Profit Schedule before price change
Profit Schedule after price decrease
profit max. output after price drop with unit tax on coal
Labour Input Requirements
labour/output relationship
a b c
a. decrease in labour demand after price decline with unit coal tax
b. decrease in labour demand after price decline with lump sum charge
c. decrease due to lump sum charge
Quantity of Coal Extracted

coal company considers the labour intense mine-shaft technology to be their least desired method of extraction is the extent to which the unit charge favours the capital intense open-production technology.

The unit charge on coal causes the Government revenues to vary with the firm's output. The automatic adjustments in the total tax revenues may help the Company ride out small scale fluctuations without having to come and appeal to the Government. Because the unit tax has the appearance of a price for services rendered, the instrument can be easily administered across several firms. Essentially the choice between this cost recovery instrument and the lump sum charge depends on the degree to which the Government wishes to become involved in the overseeing of its investments and the degree to which it wishes to co-ordinate the relations between the first Company and subsequent companies that may enter the North-East sector. The unit tax is less costly to administer but offers the Government less control over the management and operation of the town.

The unit coal tax increases the risk the Company managers incur "regret" should conditions prove to be better than expected; the "regret" is the result of the extra payments it must make to the government. In return for the potential extra charges, the managers receive a guarantee that their losses will not be as great as they would be under a lump sum tax should their initial plans have been too optimistic. Should the rates be negotiated with overly optimistic beliefs in the town's future, then the Government will pay for the over-optimism.

The cost of collecting the unit tax is low: it can be administered as though it were a surcharge on transport prices. The likelihood the Company accepts this charge should be good. If the situation remains as good as the Company says it will, then costs will be recovered. If the situation worsens, then the Government stands to absorb a loss. The only hesitancy the Company managers could have in accepting the unit would come from their belief that they have been unduly pessimistic when presenting their investment and production plans to the Government.

To summarize, charges placed on the Company rested with the shareholders, and their shifting to the employees appeared to be an unlikely event. Taxes placed on the output were seen as having no effect on the Company's choice of technologies and therefore would not generally affect the rate of substitution between labour and capital inputs. A unit charge on coal could however have an impact on the Company's decisions on the marginal open pit or mine shaft operation. If shaft mining was the least profitable the unit tax on coal could disuade the Company from expanding its labour intense mine shaft operations. Should unforseen, unfavourable circumstances develop, the company may seek to renegotiate its contracts and cut back production. In doing so the Company seeks to reduce it variable inputs which in most instances are the labout inputs. The unit tax on coal affects the Company's marginal costs and therefore induces it to cut back more than it would have without the tax. Unlike the lump sum tax, the unit tax on coal distorts the schedule of expected profits and thereby affects the Company's production decisions and reduces its propensity to expand operations into risky

minesites. Under unfavourable circumstances the effect of the charge is to increase unemployment. The revenues from the unit charge can vary automatically and the Government absorbs the risk due to changes in the firm's economic environment. Should rates be negotiated in a climate of over-optimism, then the Government pays the costs of the distorted perceptions.

.4 Charges Placed on Inputs

A tax on the inputs has a dramatic impact on the rates of substitution and the type of cut-backs the Company would seek should unforseen, unfavourable circumstances develop. A tax on one input increases its perceived cost and makes it a less desirable to use. If charges are to be placed on inputs, then we should expect the Company to want the tax base to be its most variable input. In this way the tax obligations and the revenues change most rapidly should circumstances change. The Government's revenues can vary automatically without the Government having a 'carrot' with which to entice the Company to consider social consequences of their actions. Should potential problems start to develop, the Company will be slow to come to the Government for an extra reduction in its total tax bill. When it does come, the total tax bill has been automatically reduced and the Government in a relatively weak position to demand concessions.

It is likely that the Company would prefer an employee head tax, a charge that is placed on the number of employees in the firm. The Company may be willing to pay a fixed dollar amount per month, per employee, for the fixed infrastructure provided by the Government. Changes in the labour intensity of the Company's operations would cause revenues to the Government to vary and cause the Government to absorb a greater portion of the front-end costs than it may have expected. Should the Company's economic environment change, or should new capital-intense technology be developed, then the Company can adjust its production process, leave its output unchanged and reduce its tax bill. The employee head tax leaves the Government susceptible to changes in the environment, in technology and in Company policy.

Should unforseen circumstances develop the tax would increase the Company's propensity to lay off workers and thereby threaten the stability and viability of the town.

A payroll tax is similar to the employee head tax in that the charge is placed on the labour component. As before the tax will cause the company to increase layoffs should problems develop,but it may not have quite as serious an effect as would the head tax. If unforseen, undesirable conditions develop, the Company will probably lay-off lower-skilled workers first. Should this be true, then the lay-offs will not affect the Government's revenues as much under a payroll tax as they would under a head tax. The unattractive aspect of this payroll tax is its favouring the capital-intense operation. If the average wage of the open pit worker is lower than that paid the mine shaft worker, then the payroll tax increases the Company's propensity to use the capital intense open pit operations.

Taxes on the inputs distort the Company's perception of factor costs. The Company may wish to have a cost-recovery charge placed on its inputs provided it is palced on the variable ones. Such a charge permits the company to reduce it payments to the Government automatically should unforseen, undesirable circumstances develop. They reduce the tax burden by increasing unemployment and reducing the stability of the town. The shareholders' losses due to the tax are thereby minimized.

' The main attractive aspect of the charges on employees is the Government's ability to easily and fairly split the burden of the community infrastructure across different companies in the proportion that these companies' employees make use of the town.

Labour, of course, is not the only input on which a charge can be attached. A charge can be placed on the firm's capital. This type of charge favours the labour-intense production processes. Should unfavourable circumstances develop, the Company finds it very difficult to shift the tax burden to the community. Capital inputs may not be as easy to adjust in the short run as is the labour force. Should this be true, then the property tax instrument which includes the mine sites and their equipment yields a less variable return to the Government than do the charges placed on the employees. The Government can therefore be more certain of recovering its costs by taxing the capital.

Should the economic environment improve, the charge on capital will encourage the Company to increase the use of the labour-intense processes and thereby cause the town to grow in size. Should the situation worsen the Company will be induced to shift in the long run more towards the labour-intense processes. If it can renegotiate its contracts, the Company may cut back its capital-intense operations.*

Under changing circumstances, the burden of the property tax on mine sites and equipment rests with the shareholders and therefore the Company may be unwilling to accept cost-recovery instruments.

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* We have been talking about the improving and worsening in the economic environment facing the firm in very abstract terms. This was done to reduce the amount of text needed to convery a general picture of the likely consequences of different kinds of cost-recovery instruments. The potential changes in the Company's financial circumstances are seen as being neutral with regard to the technology that is used to extract coal. Clearly, an unexpected increase in the wage rates will adversely affect the Company's financial situation. If a wage rate increase is the cause for the Company's problematic financial situation, then even if the cost-recovery instruments are attached to the capital input the Company will want to expand its open pit operations and reduce its payroll obligations.

Furthermore, it is unlikely that the Company would readily accept such a change if it were to be eventually administered by the local municipality. Under such circumstances the cost-recovery instrument would considerably strengthen the municipality's hold over the Company.

The main unattractive attribute of the capital tax is the difficulty of splitting the burden across firms from different industries with different degrees of labour intensity. Another taxable input is the raw coal. Unlike the charge on extracted coal, the rates of tax on extracted coal can be adjusted in ways that best suit the public purpose. Should the Government seek to encourage the labour-intense operations, the rates on coal extracted by means of open pit operations can be set higher than those on coal coming from mine shafts. The advantage of being able to adjust the relative profitability of open pit and mine shaft operations, and therefore the Company's choice of mix of techniques, is out-weighed in part by the possibly higher costs of administering this tax. The implementation of such an instrument would require close review of the Company's production processes. Since this instrument directly and obviously affects the Company's production choices, the likelihood of it being accepted is low.

FIGURE 38

EVALUATION OF ALTERNATIVE COST-RECOVERY INSTRUMENTS

CRITERIA	COST RECOVERY INSTRUMENTS: CHARGES ON COMPANY: Lump Sum	CHARGES ON COMPANY: Profits	CHARGES ON OUTPUT: Unit	CHARGES ON OUTPUT: Unit± [1]	CHARGES ON INPUTS: Employee	CHARGES ON INPUTS: Payroll	CHARGES ON INPUTS: Capital	CHARGES ON INPUTS: Coal
A. ECONOMIC IMPACT:								
1. Scale of Operation	neutral	neutral	reduced	reduced	neutral	neutral	reduced	reduced
2. Level of Production	neutral	neutral	reduced	reduced	reduced	reduced	reduced	reduced [2]
3. Capital Intensity	neutral	neutral	neutral	neutral	increased	increased	reduced	reduced [2]
4. Labour Intensity	neutral	neutral	neutral	neutral	reduced	reduced	increased	increased [2]
5. Risk Perception	neutral	increased	neutral	neutral	reduced	reduced	increased	neutral
B. EFFICIACY:								
1. Timing of Warning	early	none	medium	early	late	late	early	medium
2. Negotiation Position	excellent	none	fair	medium	poor	fair	good	fair
3. Certainty of Recovery	good	poor	fair	medium	fair	fair	good	fair
4. Likelihood of Acceptance	fair	poor	good	medium	excellent	good	poor	fair
C. ADMINISTRATIVE								
1. Cost of Collection	low	high	low	low	low	medium	high	high
2. Variability of Revenues	none	high	medium	low	high	medium	low	medium
3. Sharing within Industry	difficult	neutral	good	medium	excellent	good	fair	fair
4. Sharing Across Industries	difficult	neutral	difficult	difficult	excellent	poor	poor	poor
D. INCIDENCE UNDER UNFORSEEN UNDESIRABLE CIRCUMSTANCES:								
1. Shareholders	complete	complete	partial	partial+	some	some	complete	most
2. Employees	none	none	partial	partial−	most	most	none	some

[1] Unit tax on exported coal with penalty and reward clauses

[2] depends on policy regarding how rate differentials are set for the open pit and mine shaft operations.

.5 Policy Relevant Conclusions

The alternative kinds of charges that can be used to recover costs can be evaluated according to: (1) their economic impact, their impact on the firms investment and production decisions and thereby on their effect on the viability of the town; (2) their efficiency, the negotiating position they leave the Government in should problems emerge, the timing of the companies approach to the Government should problems emerge, the certainty that costs will be recovered and the likelihood that the tax is accepted by the Company; (3) the Administrative Cost associated with the tax instrument, the degree to which the tax burden can vary automatically to ease the company's burden under small scale fluctuations in its financial position and the ease with which the recovery can be effected across several firms, and; (4) the incidence of the charge across Company shareholders and employees under conditions of adverse changes in the Company's financial position.

Eight instruments have been discussed and their potential impacts have been revealed. Figure 38 summarizes our judgements as to how these instruments rate across the different criteria.